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EDITED BY J. ADAMS ALLEN, M.D., LL.D.; AND WALTER HAY, M.D.

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Original Communications.

ARTICLE I. — *Injury of the Head — Abscess, with absence of Symptoms — Trepanning — Post Mortem Examination.* By C. T. PARKES, M.D., Demonstrator of Anatomy in Rush Medical College.

On October 8th, 1870, was called to see Mr. T. Q——, who, two hours previous to my arrival, had been struck on the head with a stone of some kind, in a quarrel. The blow knocked him down. Did not gain any history of unconsciousness. He was perfectly sensible when I reached him; had no pain or dizziness in the head; expressed himself as greatly concerned about the shame of the quarrel.

Examination showed me a contused wound just external to left frontal eminence, extending through the scalp, and about an inch and a quarter long. Also, a clean cut, T shaped, wound, at the upper and back part of the left parietal bone, extending through scalp and pericranium, completely denuding the bone; long arm of cut an inch and a half long, and short arm half an inch longer.

The man was bleeding per saltum from the latter wound, and had been bleeding thus ever since receiving his injuries. By placing a finger upon the divided artery of the wound and hold-

ing it a few minutes, all hæmorrhage ceased; upon changing his position to dress the wounds, the man fainted, showing that his loss of blood had been very severe. He soon rallied; I then examined the skull thoroughly for fracture or depression, and found neither. The wounds were closed by sutures — two in the wound on the back of the head, and one in the cut on the front; water and whisky dressings, to be applied tepid.

The man put on his hat and walked home, feeling, as he expressed it, "all right."

Oct. 9th. Feels well, and wounds looking nicely; pulse 72, no headache.

Oct. 10th. Wound on back of head looks angry; a pretty well marked puffy tumor surrounding it. Took out the sutures, allowing about a teaspoonful of healthy pus to ooze from the wound; ordered the application of a good warm poultice.

The wound on the forehead still looking well; seems to be union by first intention; complains of a little headache; pulse 80. Gave two compound cathartic pills; ordered to keep in bed.

Oct. 11th. Wound on back of head still quite angry and inflamed; the surrounding puffiness increased. Broke up all slight adhesions in the wound, and gave exit to considerable quantity of pus; continue poultice. Wound on front of head swollen, puffy, and painful; took out the suture; broke up the adhesions slightly with the probe, and got pus; ordered poultice to this wound. Found every little scratch and abrasion on the man's scalp suppurating and painful; opened all the little pockets; headache increased; bowels freely moved; pulse 84. Directed light diet and quietude.

Oct. 12th. Man better, decidedly; pulse 76; headache gone; wounds suppurating slightly, and beginning to look healthy; puffiness gone; probed the wound at back of the head, and thought I got the ringing sound, as from "necrosed" bone.

Treatment continued.

13th and 14th. Doing well; appetite good.

15th. Doing well; discontinued poultices, and applied ointment of Carbolic Acid Cryst. gr. v, to ℥j Resin Cerate, spread on Oakum, to the wounds.

During next week seemed to be doing quite well; appetite was not very good; vomited his food once or twice; attributed his

want of appetite to the confinement upon which I insisted for fear of brain trouble; he had always been an active, hard working man. The wound on forehead healed up entirely; that on back of the head was healing rapidly towards the centre of the crossed cut. Satisfied that he had quite a piece of "necrosed" bone at the bottom of wound. The pulse during this week never passed beyond 80 beats per minute.

Oct. 25th. Patient thought the "dead bone" should be removed; advised him to wait until nature loosened it. Took him to see Professor Gunn, of Rush Medical College. He confirmed the diagnosis; advised the patient to await the efforts of nature at separation; to make use of a more generous diet, and to take a little more outdoor exercise.

From this until October 28th, noticed no adverse change in the patient; did not complain so much of nausea; in fact, said he "didn't feel sick." The wound on the back of the head had healed, all but an opening sufficiently large to admit the probe. Bowels freely open.

On the 28th of October found him anxious and worse; pulse 84, and a feeling of numbness in right arm, the side opposite to site of injury. Told him to keep perfectly quiet, and that I would bring Dr. M. Gunn to see him early in the morning.

Oct. 29th. Dr. Gunn and myself saw the man at 9 A. M.; found him speechless, with laborious breathing, and paralysis of the side opposite to the seat of injury; pulse 108, and jerking; evident symptoms of compression. Dr. Gunn trephined at the site of the wound on back part of the head. On the removal of the outer table of the skull, we found quite a quantity of pus in the "diploe"; under the inner table there was a thick layer of lymph covering the dura mater. The dura mater did not bulge into the trephine opening; the pulsations of the brain were visible; the lymph showed several specks of degeneration into pus.

After the operation the man's countenance looked brighter; his pulse fell to 84, and in answer to the question if he was better, he said, "I am"; improved by the operation. In the afternoon found him no better; all the morning symptoms present. He gradually continued to grow worse until the morning of Nov. 1st, when he died—three weeks and three days after receiving his injury.

Post mortem seven hours after death made by Professor Moses Gunn, Dr. Ben. C. Miller, county physician, and myself. On removing the scalp, no evidences of either fracture or depression were visible on the outside of the calvarium. On removal of the calvarium, no evidence whatever of any injury to the inner table of the same could be found. There was a slight deposit of lymph on the dura mater at the site of injury. The vessels of the membrane in this neighborhood slightly congested; no other evidence of meningeal trouble present. On cutting open the dura mater, found the arachnoidian cavity free from fluid, and the parietal and visceral layers of the arachnoid membrane bright and glistening, seemingly perfectly healthy. Beneath the visceral layer of the arachnoid membrane, on the surface of the cerebral mass, we found a well defined layer of yellow lymph, spread over the posterior three-fourths of the left cerebrum, and extending slightly on the anterior portion of the right hemisphere. The lymph was oldest and thickest immediately beneath the site of injury. Here it was about one-fourth of an inch thick, and left a smooth surface upon being cut into.

The substance of the brain presented nothing noticeably abnormal. Upon opening the lateral ventricles, each discharged at least one ounce of serous purulent fluid.

During the whole course of his illness this man never showed any symptoms which pointed positively to trouble with the brain, until October 28th, unless the want of appetite was a symptom indicating it. He complained of no headache, except four or five days after injury, when all the wounds took upon themselves unhealthy action. When they improved, the headache departed. At this time, when suppuration was at its height, the pulse rose to 84 beats per minute; at all other times it was below 80, until the 28th, when it came up to 84 again. On the 29th—day of operation, 108; day of death, 120.

The man was kept as quiet as possible during the whole time, without being absolutely in bed. The case is surely instructive in indicating a guarded prognosis even in seemingly trivial injuries to the head.

ARTICLE II.—*A Case of Traumatic Tetanus, treated with Hyd. Chloral.* By A. H. KINNEAR, M.D., Metamora, Ill.

On Monday, Sept. 19th, 1870, a summons came to my office requesting my services some three miles east of town, to see a little German boy, eight years old. I was not at home when the messenger arrived, who stated that his orders were, if I was not at home, to have my student, Mr. F. G. Roberts, visit the boy until I returned. Mr. R. rather reluctantly answered the summons, and found the little boy strangely affected. He did not wish to administer any medicine until I could see the case, and got permission of the parents to bring the boy to town, and have him remain over night at my house, so that I might see him that evening, as it was nearly sundown when the summons came. Shortly after the boy was brought to my house I came home, and was not a little surprised to find a marked case of tetanus. The little fellow was suffering terribly from the persistent rigidity of the muscles of the lower jaw, the neck, and of the trunk. Opisthotonic spasms at intervals of from half to one hour. During these spasms, the whole body would be bent backward in the form of an arch, resting upon the occiput and sacrum. Trismus persistent; could not open his mouth more than half an inch; deglutition slow and difficult; pulse normal, except during the paroxysms, when they would become a little accelerated; no trouble in voiding urine.

I learned the history of the case to be as follows:

On Friday night, the 16th, this little boy fell out of the bed on the floor, striking on the back of his head and spine, but got up and went to bed again, not complaining of its hurting him, at the time, further than a stunning sensation; slept well the remainder of the night. The next morning, the 17th, the parents noticed that he acted strangely—also, an unnatural expression of the features, but gave themselves no uneasiness until late that afternoon, when they noticed that he could not articulate distinctly, mastication and deglutition rather difficult, and the muscles of the jaw becoming stiff.

During the night he slept but little, consequent upon pain and occasionally a light spasm. The next morning, the 18th, they

observed that the muscles of the neck and trunk were becoming stiff, with opisthotonos at long intervals, but not very severe.

He continued in this condition, the characteristic symptoms becoming more marked, until Monday, the 19th, when some of the neighbors prevailed on them to have a physician called; the parents thinking, all the time, that his condition resulted from cold, which he would probably recover from in a short time, without the interference of a physician.

The above being the facts in the case as near as I could gather them, I diagnosed the case traumatic tetanus, as the boy was in good health at the time of the accident, and had been all his life, although I could discover no abrasion of the skin, only a little tenderness at the upper half of the cervical spine.

Being aware that recovery from this disease is the exception, and death, so to speak, the rule, I was at a loss to know what would be best, in the case, to relieve the rigid condition of the muscular system, from which the vital forces were fast being exhausted.

The authorities state that there is no remedial agent that can be relied upon in this affection. This being the state of affairs, I felt justified in experimenting in the case, and, therefore, concluded to try Hyd. Chloral. I administered fifteen grains in solution, and in twenty minutes he dropped off into a quiet sleep, and slept about one hour; then awoke suddenly in a spasm, which lasted about one minute. I then gave him twenty grains more; he went right to sleep, and slept very quietly the greater part of the night, awakening twice, partly, only, in a light spasm. The next morning, without my knowledge, he got up, and dressed himself, saying that he felt better. He could open his mouth a little wider than the evening before, but not sufficiently to take food except in a semi-liquid form. After breakfast I gave him fifteen grains more of Chloral, and had him removed to his home, with orders that he should be placed in a recumbent position, and remain perfectly quiet; nourishment to be given every four hours, the Chloral every six hours, twenty grains at each dose.

The next morning, the 21st, I found my little patient very much relieved. He had rested quietly all night; the muscles of the jaw were more relaxed, also of the neck and trunk; but those of the lower extremities were becoming a little rigid. Had only four attacks of opisthotonos since he left my house, which were

not so severe, and shorter in duration. I gave him one ounce of Castor Oil and five grains of Calomel, and continued the Chloral in the same doses as before, at intervals of six hours, or oftener, if it became necessary.

The 22nd, my patient rested well through the night; the calomel and oil had produced copious evacuation from the bowels; the muscles of the jaw, neck and trunk still more relaxed; he could eat a little this morning. Had no spasm since I last saw him, but the lower extremities more affected; continued the Chloral and nourishment the same as at last visit.

23rd. Still improving; nearly relieved of the trismus; rested tolerably well through the night; had two opisthotonic seizures since my last visit, one of which occurred during the night. The rigidity of the muscles of the lower extremities, however, no better, and during the spasms the penis would become erect with contraction of the scrotum and drawing up of the testicles, so much so as to cause great pain in the parts; the bowels moved freely twice. Continued the Chloral in the same quantity at intervals of eight hours, and added Bromide of Potassium in solution, twenty grains at each dose, to alternate with the Chloral; nourishment to be increased in quantity.

24th. Gradually improving in every particular. But one spasm since my last visit, caused by imprudence. The scrotum remaining in a contracted condition, but causing no pain; considerable stiffness in the muscles of the thighs, but not quite so rigid; the pulse more frequent than at any time previous, in consequence of exhaustion; respiration natural; no difficulty in voiding urine. Continued treatment the same as at last visit.

25th. Improvement more marked in general appearance than at any time previous, trismus having nearly or quite subsided; can articulate very distinctly; takes food as readily as before being affected; had two very light spasms, one while I was there, which seemed to affect the muscles of the thighs more than the trunk, and as soon as this passed off, the whole muscular system became relaxed, except the muscles of the thighs.

I now began to feel very much encouraged about my patient's recovery, as this was the ninth day since the disease first began to manifest itself. Having succeeded in relieving almost entirely the trismus, the rigidity of the muscles of the neck and trunk, the

only remaining difficulty now was to relieve the stiffness of the muscles of the lower extremities, and tone up more thoroughly the whole system, which had become very much reduced from the long continued contraction of all the voluntary muscles. I continued the chloral and bromide in less quantity, but at shorter intervals; nourishment to be increased in quantity; and decided that at my next visit, if the contraction of the muscles of the thighs continued, I would try the effect of morphia (sulph.) hypodermically, and the electric current. Left my patient, expecting to see him the next day.

26th. On my way out this morning to visit my patient, I met the father of the boy, who informed me that through the influence of a brother-in-law, who had called in to see the boy for the first time since his illness, he had been persuaded to call another physician of this place, of greater experience, to take charge of the case, without informing me. The physician in question pronounced it *rheumatism*, and treated it, I presume, accordingly. Seven days more elapsed, and the boy was a corpse.

This is rather an incomplete case to report, but as I took notes in full from the start, with the object of reporting it in the JOURNAL, I feel desirous yet to do so, as far as I was connected with the case, to show the influence that the hyd. chloral has in ameliorating the rigid condition of the muscles in this affection. I am inclined to believe that this is accomplished more through its hypnotic influence than that of any other. Its effects were beyond my expectation. The bromide, probably, had some effect in allaying nervousness, but to what extent, in this terrible affection, I am not able to say. There seems to be no danger in keeping the system thoroughly under the influence of chloral, any reasonable length of time, and by this means we succeed in procuring rest and quiet sleep for our patient, which has a marked tendency to interrupt the tonic spasm of the muscles; and I have great reason to believe that the treatment adopted in this case, if it had been followed, with plenty of nourishment, would have been successful, and that the patient would have recovered.

ARTICLE III.—*Read to the Muskingum County Medical Society.*
By A. BALL, M.D.

The case reported in the CHICAGO MEDICAL JOURNAL, by Dr. McElroy, entitled "Clinical Experience in Private Practice, from a Physical Basis of Life," requires some corrections and some comments.

Being called in council with Dr. McElroy, on April 5th, and seeing the boy only twice, that morning with Dr. M., and the same afternoon, at his request, in his absence, I can only speak of facts as they occurred under my observation. About 8 o'clock that morning Dr. M. called at my office, saying he had a very singular case in young Patterson. He had visited him the day before and again that morning, and found him getting worse. He asked me to see the case with him, stating that he had called before for me, and regretted that I was absent, as he thought if ammonia had been injected into his veins, then there would have been some hope of saving the patient; and, as it was a case presenting no hope under any other treatment, the experiment would be perfectly justifiable. "But now," he remarked, "I fear it is too late to do any good."

On arriving at the house, we found the boy throwing himself about the bed in an unconscious state. His surface was cold and livid. Froth was working from his mouth, and he was pulseless at the wrist. Dr. M. examined his pulse first at the wrist, saying there was no pulse at that point. He then felt in the axilla, and called my attention to the fact that there was a feeble pulse in that location. I then examined carefully, and fully corroborated his statement: finding no pulse at the wrist, none at the bend of the elbow, but a feeble, fluttering pulse in the axilla. I have no recollection of either of us attempting to count it; the pulse being so feeble, and the boy so restless, it would probably have been fruitless to do so. Placing my hand on the chest, I found a *rough, harsh* respiration, interfering, by the accumulation of partially dried mucus in the small bronchi, with the respiration, owing to the loss of sensibility, and physical prostration.

On retiring to consult, I was not a little astonished and alarmed on learning that the boy had taken *three ten-drop doses of Veratrum Viride in as many hours.* My first thought was how to

counteract the effect of the Veratrum, which had been taken in what I considered such unjustifiable and dangerous doses. We had no difficulty in agreeing upon the treatment, which was brandy and milk, and hydrate of chloral, in about seven-grain doses, every hour until rest, and a jacket of mustard poultice over the entire chest. Dr. M. was compelled to be absent through the day, and requested me to see the boy at noon. I saw him at two o'clock P. M., and was informed that *he had neither vomited nor purged* between my first and my second visit. But, under the change of treatment, he had rapidly become quiet. He had perfectly reacted. His surface was florid. His pulse was active, *even feverish.* The breathing was full and easy, and the boy seemed partially conscious. I at once ordered the stimulants stopped, and directed a resumption of Veratrum in *two-drop* doses every two hours, until the fever should subside. I did not see him again during his sickness, but was informed daily of his improvement.

I have reported the *facts* thus in detail, because in some important particulars they differ from the statements made by Dr. M., and also that each may judge for himself *what remedies promoted and what retarded the recovery* of the boy, without reference to whether they *sustain* or *condemn* the treatment "from a physical basis of life." With all deference to Dr. M.'s opinion of the case, as to the remedies which were beneficial, I am constrained to regard the depression as largely due to the veratrum; and but for the prompt use of the brandy and the chloral, we would have had a fatal termination. I hope the facts in this case will be a warning to others to avoid the reckless use of so potent and so dangerous a remedy as that upon which Dr. M. so much relies. I am at a loss to see how an impartial seeker after true therapeutic effects can regard veratrum as other than a *hindrance* in this case. It shows that when a theory is adopted by one as enthusiastic as my friend, he can only see results of certain treatment as he may imagine them to comport with his theory. It will be seen by the above that Dr. M. *had no hope of his case under the veratrum treatment*, and considered it too far gone for his ammonia experiment, when he adopted the brandy and chloral treatment. It will also be seen that *he had forgotten the facts* when he stated that the pulse was perceptible at the wrists at the

time we were in council. He is further and *materially* in error in stating that there was vomiting and purging *after the chloral and brandy* were given, as *neither* occurred between my visit in the morning and that in the afternoon. And, as to the chloral being "inert," it was followed by the *only result hoped for* when we ordered it, viz., rest and reaction. And its result was much more prompt and efficient than either of us anticipated. Permit me to say that I regard the case as one of a wonderful escape from overdosing with veratrum, and but for the "little jar due to the consultation," the boy would now be numbered with the dead. Indeed, I think the result would justly authorize us to classify chloral hydrate as one of the antidotes to veratrum in overdoses.

To review the facts: the boy was found in an insensible state, pulseless and prostrate. Three-fourths of an ounce of chlorate of potash is given during the night. He is pulseless and prostrate in the morning. Tincture of Veratrum Viride is given at 5 o'clock in the morning. Dose 10 drops, which is repeated at 6 and 7 o'clock. We visit the patient at 8 and find him worse, more restless and more prostrate. He has vomited and purged unconsciously in bed; is pulseless at the wrist, and all are of the opinion that he is dying. In this condition we find the patient, when brandy and milk and chloral are ordered, together with a mustard poultice enveloping the whole chest. Everything else is stopped. The vomiting and purging cease. The restlessness soon subsides. The surface becomes florid; the pulse is fully restored at the wrist, and consciousness is returning. Now let me ask any reasonable man what remedies gave the boy relief. I will not attempt to insult your intelligence or judgment by suggesting an answer.

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[ZANESVILLE, Nov. 2, 1870.

Messrs. Editors: It was agreed by the Society, that the remarks of the several fellows, on the reported case of Drs. McElroy and Ball, should be published in the JOURNAL, but the Secretary did not note the remarks at the time, nor have the members who participated at the time furnished him such. Suffice it to say, that Drs. Culbertson, Bell, Hildreth, and Prof. T. A. Reany, spoke condemnatory of the treatment, as given by Dr. McElroy.

J. R. LARZELERE, Secy.]

ARTICLE IV.—*Clinical Experiences in Private Practice—the Modus Operandi and Therapeutic Uses of Veratrum Viride.* By Z. C. McELROY, M.D., Zanesville, Ohio.

The consulting physician referred to in my recent report of a clinical case,* read a paper to the Muskingum County (Ohio) Medical Society, at its August session, 1870, taking exception to the statement of fact in the history of the case, as published, during his connection with it, as well as the therapeutical conclusions drawn from it, which, by a resolution of the society, was ordered to be forwarded to the CHICAGO MEDICAL JOURNAL for publication, with the debate on the whole case. I voted for the resolution, and hope you will open your pages for their insertion; and, appended, this, my reply, for the reason that it is my impression it will do good.

The matter of the facts of the case, as published, may be safely referred to the parents of the child, whose statement, made at my request, is here annexed.† And, with that, the question whether my report of the case is correct or not may be safely dismissed. I, however, again declare, that the case as reported and published is substantially correct, as nearly so as it is by words possible to reproduce any case, with reference to critical judgment on its therapeutic management.

The part played by Veratrum Viride in the case is the real point at issue. Did its influence tend to carry the patient through the crisis? Or did it place him in greater jeopardy than he was before its administration? The purpose of this paper is to try to furnish solutions to these inquiries.

It is much to be regretted that the "impressions and opinions" of gentlemen in the scientific world, are not at all times held subject to correction by accomplished facts in reference to anything, even to the matter of the dose and mode of administering any therapeutic agent, let it be Veratrum Viride or anything else.

The fact that the patient was substantially convalescent in four

* Chicago Medical Journal, July, 1870.

† [The letter from the parents, containing the statement referred to by Dr. McElroy, is in our possession, but we deem its publication unnecessary. —EDS. JOURNAL.]

or five hours after the last dose of ten drops—thirty drops in all, from six to eight o'clock—cannot be explained away, or got over. He did get thirty drops in something near two hours—did vomit and purge involuntarily, and at the close of the "depressing effects" was substantially convalescent, and is here, alive, to-day, to show that thirty drops Fld. Ext. Ver. Viride, given, ten drops at a dose, at intervals of one hour, until he had taken three doses —thirty drops in all—did not finish him when he was already so near dead.

The author of the paper, and so many of the fellows of the society as participated in the debate, evidently consider, and indeed stated, Veratrum Viride to be a most virulent poison. And as no one of them defined what they understood by a poison, to get at their probable mental impressions reference must be had to lexicons.

Webster's definition is, "any agent capable of producing a morbid, noxious, or dangerous effect upon anything endowed with life." Dunglison's, "a generic name for all substances which, when introduced into the animal economy, either by cutaneous absorption, respiration, or the digestive canal, act in a noxious manner on the vital properties, or the texture of organs."

And these definitions may very properly be compressed into the conception of a gentleman whose wife had taken a little too much Belladonna for her asthma, for their ideas of her personal safety and comfort. Though prescribed by a physician, both husband and wife thought the exchange of her difficult breathing, for the apparent cutaneous heat, confused mental faculties, and nearly suspended vision, rather a poor bargain. And while he was soundly berating physicians for prescribing such "pisens," I asked him this question, "Mr. Palmatry, what do you understand by poison?" "Pisen, pisen, why, pisen is something that kills people."

This reply induced me, at that time (about a year since), to make further efforts to get at what was the prevailing mental conceptions in the popular and professional mind as to what was poison, and this reply of Mr. P. was found to reflect them very accurately in this city and county. And this debate, in connection with the definitions introduced here, from the lexicons in use by both people and the profession, shows, with tolerable

accuracy, that the professional does not materially differ from the popular understanding as to "What is poison?"

However proper these conceptions may have been only a quarter of a century since, they are extra scientific in 1870, and not much to the credit of any gentleman, claiming to be scientific, who holds them.

But, working on this popular idea, or mental conception, of what is poison, how do the impressions and opinions of these gentlemen compare with the facts on record, "by authority" of the profession? Is Veratrum Viride a poison at all? Did it ever kill anybody? Did it ever produce noxious effects? or morbid? or dangerous?

Prof. Wood* says, "These signs of prostration are sometimes so great as to be alarming; although I have seen no account of fatal poisoning."

Prof. Stille† says, "Alarming and apparently dangerous as these symptoms are, it does not appear that they have ever terminated in death. On the contrary, they have been dispelled with facility by merely suspending the use of the medicine, and administering diffusible stimulants."

Profs. Wood and Bache‡ are silent in regard to any dangerous or fatal effects. Nothing—not a word—is said about fatal poisoning. And if there is a recorded death from Veratrum Viride, it has never fallen under my observation.

Prof. H. C. Wood§ experimented with two alkaloids, obtained from the Veratrum Viride, Viridia and Veratroidæ, by hypodermic injections, on inferior animals. Viridia he found to depress directly the heart's action, and death by paralysis, but no post-mortem lesions of form, or vomiting, or purging before death. Veratroidæ he found, also, to depress the heart's action, death by asphyxia, violently emetic, sometimes cathartic, locally irritant, but no post-mortem lesions of form. With the resin of Veratrum on man, his experiments resulted, not in depressing the heart's action, but dyspeptic symptoms.

* Therapeutics and Pharmacology, II, 154. 1856.
† Therapeutics and Mat. Med., II, 343. 1860.
‡ U. S. Dispensatory, 1865.
§ Am. Jour. Med. Science, Jan., 1870.

So much for "authority;" and, in so far as authority deals with facts, none can yield more readily or gracefully to it than myself. But, in so far as "authority" deals in opinions and impressions, or inferences, it is known that for these there is in my mind little reverence. Opinions I can manufacture by the mile daily, and their value will be inversely to their length or number. Scientific conclusions and inductions are, with me, the result of mental and physical pains-taking labor, and needful delay, to obtain all possible accuracy.

My acquaintance with Veratrum Viride commenced about twenty years since, and for not quite half of that time I held opinions concerning it not materially different from those brought out by this discussion.

A dearly-loved female relative, who passed away ten years since, took, for several months before her death, a combination of Veratrum and Aconite, twice daily, to produce vomiting. They were combined, because results were obtained from both, which did not follow either separately, the reason for which will appear before I get through with the subject. At 9 o'clock in the morning she took the requisite dose, was sick by 10½ or 11; ready for her dinner soon after noon; in her carriage for a ride on all pleasant days, as free from discomforts as an incurable invalid could be; usually returning in time for supper. At 9 o'clock in the evening the same thing was repeated, falling asleep usually before midnight, and resting tranquilly till morning. This was found, by experience, to be the only way in which the inordinate working of an enlarged heart—a heart that had lost its normal form*—and, as a result, its normal function—and a plainly-to-be-seen aneurism of one of the external carotids—could be so controlled as to obtain the comfort she had from noon till evening, and from midnight till morning. All other means had been tried, and failed to give a moment's relief from the terrible — truly terrible restlessness which so soon overtook her after the effects of the Veratrum had passed off. She dreaded the vomiting all the time, would gladly have escaped it, but she dreaded the terrible restlessness more, and so, meekly and cheerfully submitted to the

* Chicago Medical Journal, January, 1870, p. 14.

effects of the Veratrum; and it is proper to say, that under the vomiting dose, she did not obtain relief.

This opened my eyes, and enlarged my knowledge of Veratrum Viride. Had it been such an active and virulent poison as my fellows in the society insist on, this lady should have died from "symptoms of poisoning" months before she did. When her death did occur, it was peaceful, and, at the moment, unnoticed by an attentive and vigilant daughter, in her room, and sitting but a few feet from her at the time, as if she had only fallen asleep. She returned from her ride at 5½ in the afternoon, and before 6 o'clock she was dead.

A few months after this lady's death, a small child, perhaps a year old, daughter of Mr. Uriah Sharp (now a young woman, hale and hearty, and seen within a few days), helped herself to a vial containing about half an ounce of the tincture, and, unnoticed, swallowed its contents. As, in prescribing it in the family, I had explained to them that it was an active poison, and had it so labeled, they were greatly alarmed, and sent for me immediately. The mother had had presence of mind to compel the child to drink some mustard water, so that I found her vomiting. Placing the child's head very low, permitted it to vomit. It became very pale; pulse sunk down very low, perhaps below 40, though not counted at the time. At a proper moment, a little spirits and paregoric was administered, repeated as it was thrown up, until the vomiting ceased, and the pulse rose in frequency. Returning in a few hours, found the child, to my very great surprise, playing, as if nothing had happened.

I was considerably wiser in regard to Veratrum Viride in consequence of this accident.

Not long after this occurrence, and during the same year (1861), I had two patients in one house, both married females, under treatment for continued fevers. For one of them Veratrum had been prescribed, so that she would get eight drops in a teaspoonful of a mixture, once in six hours; and a Citrate of Potassa mixture, of which she was to get a tablespoonful every two hours. By mistake, the Veratrum mixture was given in tablespoonful doses every two hours from morning till evening. At my evening visit, she was found sick, very sick, at her stomach, had a ball in her throat which she thought would soon smother

her, had vomited quite a number of times; pulse very slow, skin very cool, and, in professional technology, "greatly prostrated." The cause was soon ascertained, and a glass of brandy, with some paregoric, administered, with speedy relief. This patient, though considered much the worse of the two, recovered at once; but in the other case, which did not get Veratrum at all, the fever ran a course of three weeks.

I did not fail to learn something from this mistake, too. And to mistakes, sometimes my own, but more frequently others', I am indebted for much of the knowledge I now esteem valuable in my vocation. Early in my professional career, incidents began to undermine my confidence in the validity of what I had been taught in regard to therapeutics, as a medical pupil. They culminated in my setting about, a year or so after these occurrences, studying the problem, "How do medicines produce their effects?" the results of which were communicated to the profession in a monograph, near the close of 1868.* By this time, and in consequence of this labor, my knowledge of Veratrum had been considerably enlarged. Working away at the problem, the physical, physiological, and dynamic unities of organic life were reached toward the close of the year 1869, and first communicated to the profession in the January number of this JOURNAL for the present year (1870). But before this time, I had determined, by experiment, that the best results of Veratrum were realized from a single large dose, given to produce vomiting and the very "depressing effects" so much feared by the fellows of the society, and to caution others against a like dangerous use of the drug, was the purpose of the paper, debate, and its publication.

From this gradual accumulation of empirical personal experiences, extended over twenty years, my deliberate judgment now is, that a teaspoonful, or, for that matter, an ounce, given at a single dose, to produce these identical "depressing effects," so much deprecated by certain fellows, is, for certain conditions, accompanying high temperatures (105° to 108°), rapid circulation, great jactitation and restlessness, very much safer, and followed by infinitely better results, than when given in smaller doses,

* Chicago Med. Jour., March 1, 1869, p. 157.

simply with the view to controlling the heart's action. This condition of things is mostly due to retention of the results of tissue metamorphosis, for which I find no designation more accurate and expressive than dead matter, for the expulsion of which the very excessive motion is set up in the interest of waste, of which the jactitation and restlessness are mere incidents. And it seems to me that these better results are due to the elimination of this dead matter, or results of tissue decay. With such a view and purpose it was given to Albert Patterson, when the other measures instituted to the same end had failed, and it seems to me the results were satisfactory, and expectations founded on this purpose were fully realized.

The consultation, I own, did temporarily unsettle my purpose, from 8½ A. M. to 5 P. M., but it was then resumed, and never deviated from till its close; I had no occasion to regret it, and think I learned something from the episode.

Had Albert received brandy, and "diffusible stimulants," so called, it seems to me tolerably certain, that Mr. and Mrs. Patterson would have had a funeral from their residence within a couple of days, and I should not have met and spoken with him only yesterday (August 22, 1870).

Since Albert's case was treated, I have given it in half and teaspoonful doses a good many times, and with uniformly and altogether satisfactory results. The conclusion, then, is forced on me by these experiences, that this is one of the proper and legitimate uses of Veratrum Viride in practical therapeutics.

Science is cosmopolitan. Her temple has no side or back door, through which to smuggle a falsehood, so that it may pass for a truth or reality. If a teaspoonful of tincture or fluid extract of Veratrum Viride can be safely given in Zanesville, it will be equally safe to repeat it in Chicago, London, St. Petersburgh, or Melbourne, under like circumstances. But art is not so. Chicago may at this moment hold a human hand, or human head, which can do that which not another in the world can do so skillfully. And I aver that a teaspoonful of a good article of tincture or fluid extract Veratrum Viride can be given, even by inexperienced hands, to check excessive motion, and eliminate dead matter, under such circumstances as were presented in Albert's case, in Chicago, Zanesville, San Francisco, or any other

place, and at any time, without fear of death from its "depressing effects," or "poisonous results," such as were pictured to the society during the debate.

All that any therapeutic, remedial, or hygienic agency, or measure, can, by any possibility, do, or any mode of force, mechanical, chemical, or physical, to any human body, sick or well, dead or alive, can be merged, nay, will go without violence, or straining, or distortion, into one of these three classes; and cannot be made to go into any other, aiming to be fundamental or ideal unities, viz.: 1st, Retarding motion in the interest of repair or waste, i.e., constructive or destructive metamorphosis; 2nd, Promoting, or accelerating motion in the interest of repair or waste; 3rd, Changing the molecular forms of structure, or tissue, or viscera. I repeat, that nothing on, above, or below the earth's surface, can do anything else than one of these three things, to a human or organized body, dead or alive.

Aside from my own experiences, those of Prof. H. C. Wood, so recently reported, and heretofore alluded to in this paper, demonstrate that neither Viridia, Veratroidæ, nor the resin of Veratrum, changes the molecular forms of structure, as small pox, scarlatina, etc.; and, therefore, as it only influences motion, or chemical changes in the molecular forms of structure, that influence, when accompanied or succeeded by elimination, by vomiting, or vomiting, purging and sweating, does not, or rather has not, up to this time, "killed" anybody, and will not be likely to, so long as it is followed by active elimination.

Prof. Wood thinks that in Viridia the profession has a remedy, by means of which, "all the peculiar sedative influence of Veratrum Viride can be obtained, without the horrible nausea and vomiting which always occasion so much discomfort, and, in some instances, endanger life." He does not say that it does anything more than "endanger life." And suppose that his expectations in regard to Viridia are realized, it will prove to be a much more dangerous agent than the tincture of the whole drug; and for the reason that the "horrible nausea and vomiting" are absent, which are the sure guarantees of safety to life. It must, then, be placed with aconite, gelseminum, and chloral—agents which retard motion without elimination, and, therefore, agents which can, and will, in large doses, destroy life. The popular, as well as profes-

sional, ideas of "virulent," or "deadly," or "active poisons," are all based on the velocity with which motion, or chemical changes are promoted, retarded, or arrested, or forms changed. The form-changing "poisons" are, virus of serpents, insects, etc.; combustion (burning); mineral acids, (concentrated); certain salts, as chloride of zinc; the concentrated alkalies, and their oxides, and included in this class are the physical forces, falls, mechanical violence—as by machinery; blows; bullets and bombs, etc., etc.; for the reason that, if they do not change forms of molecular structure, they rarely, or perhaps never, destroy life. And the measure of danger is the extent of the change of molecular forms of structure. Man and animals become old simply because the normal molecular forms of structure, as well as physical contour, or figure, are changed, or lost. And old age is not considered a "poison," simply because the changes of the molecular forms of structure are spread over a lifetime—come gradually, slowly, but none the less surely.

Other modes of force in chemical combinations of matter, influencing motion, or chemical changes, in both the interest of repair and decay, depend for being considered "poisons" solely on the velocity with which they influence motion.

Thus, prussic acid and the cyanide of potassium are considered among the "deadly" poisons, solely on account of the velocity, or rapidity, with which they retard, or arrest motion, or chemical changes in the molecular forms of structure. In this class are chloral and chloroform. Strychnia, on the other hand, is considered a "deadly" poison, solely on account of the rapidity with which motion, or chemical changes in the interest of waste, is promoted.

Happily, the greater number of remedial agents in use only influence motion in either, or both, the interests of repair and waste. A few change forms, as calomel, and from them people shrink, they cannot tell exactly why, but the reason, for calomel, is, changing molecular forms (salivation). Tartar emetic, Spanish flies, etc., change forms, and promote motion in the interest of waste, and are not popular remedies, and probably never will be, and are very likely to pass further out of use by the profession.

I think, therefore, that the results of empirical experience

alone, which, by the by, is the court of final resort in all vexed or unsettled therapeutic questions, aside from the philosophy of its operation, demonstrates that Veratrum Viride simply retards motion in the interest of waste, and eliminates dead matter, but does not change molecular forms of structure, when given in doses sufficient to produce vomiting, or vomiting, purging and sweating; and that, when indicated for these purposes, a teaspoonful, or even larger single doses, is safer; though, for that matter, either is safe enough, and better results are realized than from the same quantity in smaller doses, extended over more time.

P. S. It may be proper to state, that when Veratrum is given in a large dose, for the first time in a family, I never leave the house until the vomiting ceases. When the vomiting comes on, chairs are placed under the posts of the foot of the bed, pillows removed, and a basin held to receive the discharges, giving tepid water through a glass tube, or, in its absence, a straw. I deem this due the patient; and though it looks distressing to bystanders, patients rarely complain about it after the sick stomach ceases. The relief quite compensates for the apparent distress.

ARTICLE V.—*A Day amongst the Surgeons of Philadelphia.* By JNO. E. OWENS, M.D., Chicago.

Through the kindness and courtesy of some of the most eminent surgeons of the Quaker City, I have been enabled to see very much that is interesting and profitable. I send you a few jottings of what has passed under my notice, hoping they may find a place amongst the valuable pages of the JOURNAL.

Prof. Pancoast gave me the particulars of a case of rhinoplasty, in which his son included, in the flap taken from the forehead, periosteum sufficient to produce new bone for the nose. I was sorry not to have seen this case, but it was impossible, as the patient had left the city. Prof. Pancoast's rule in this operation is to make the new nose one-third thicker and longer than the normal size. He applies, at the proper time, a gutta percha mould, with which, and a stuffing of cotton upon the inside of the new nose,

he succeeds in giving this lump of flesh a shape. This mode of including the periosteum in the flap for the nose, originated in Berlin, with Langenbeck, who is a master in the art of plastic surgery, and who has taught us the full value that is attached to the preservation of the periosteum in bony resections. I believe, however, that, at present, Langenbeck does not look so favorably upon the periosteal transplantation method in rhinoplasty. Prof. Agnew, who has experimented considerably with periosteum, says that the new bone is deposited in nodules, and that even these do not always occur.

Professor Agnew was good enough to show me a pair of forceps which he had devised for the removal of large uterine polypi. The instrument is strong, and composed of a male and female blade, which may be introduced after the manner of the obstetrical forceps—one blade at a time. A lever of the third kind, attached to one handle, and passing through the second, is worked with the disengaged hand, after the instrument has been applied to the pedicle; and thus moving one toothed blade over the other, the tumor is chewed off. Of course there is no hæmorrhage. I saw him also use skin plaster or prepared peritoneum of the bullock for closing the eyelids after extraction of cataract. He has used this organic substance in the ligation of several large arteries, cutting off the ends of the organic ligature close to the vessel, and closing the wound over it. The result was satisfactory. This skin plaster may be ordered of Tiemann & Co.

Prof. Gross being absent in Baltimore, his son, Dr. S. W. Gross, conducted the college clinic. Delayed union of fractured radius was the first case presented. This was treated with the ivory pegs—Dieffenbach's method. Silicate of Potash was recommended as an immovable dressing in suitable cases, and used in this one. It is certainly an elegant substitute for plaster of Paris, or starch, and may be most conveniently applied with an ordinary paint brush. The second was a case of hydrocele, in which the following procedure was recommended: With an ordinary sharp-pointed bistoury, puncture the tumor in order to drain off the fluid, and, about a week subsequently, operate for the radical cure by injection. At the end of this time Dr. Gross teaches that the superficies of the vaginal tunic having very much decreased, a smaller surface is presented for inflammation at

the time of the injection. Such a precaution may well be taken when the sack is very large, or when violent inflammation can be anticipated; but, in general, this preliminary is unnecessary, as the injection of strong Tr. Iodinii is sufficient. There is always an abundance of diseases of the urinary organs at the college. In the treatment of stricture of the urethra, rupture has become quite common; and the result of this method, so far as I have been able to learn, has been very gratifying. Richardson's, Voillemier's and Holt's dilators have been used for this purpose. A case of No. 4 stricture at the bulbous urethra was ruptured with Richardson's instrument, and immediately a No. 18 steel bougie was passed. The rents in the stricture are filled up by new tissue, and new mucous membrane is produced at the points of rupture. During the reparative process, of course dilatation by the passage of bougies is persevered in. A more lasting result is claimed for this than for any other method. In the next case of stricture, every justifiable effort was made to pass an instrument, but without success. The canal was irregular and tortuous; the urine dribbled away; there was hypertrophy and induration of the penis; œdema of the prepuce; the perineum was swelled, and deformed by scars; fistulous openings discharged urine, and here and there pus; the landmarks of the perineum were effaced. In such cases, tapping the membranous portion of the urethra is practiced. The knife is introduced not far from the verge of the anus, the only guide being the finger in the rectum. This relieves the parts, in front, from irritation, and frequently in a short time the improvement is such that an instrument may be passed.

I am very much indebted to Dr. Maury for the pains he took to show me two cases of ectropion vesicæ, upon which he had operated some time previous to my visit. Dr. Maury has immensely improved the condition of these patients in the following manner: The redundant folds of skin in the groin, covering hernial protrusions, and extending towards the perineum, were made available by carrying an incision across the perineum, making the extremities of the former look towards the tuberas ischiorum. This flap was marked out sufficiently large to oblige the operator to crowd it over and around the cleft in the abdomen. It was dissected up with its base at the lower margin of the cleft, and turned over the latter, like the leaf of a book, so that its

cutaneous surface was presented to the ectropion. The upper edge of this flap, thus applied, was inserted beneath the integument above the cleft, and the edges were united by numerous points of suture. When the dissection of this large square flap reached the penis, the latter was liberated by a semi-lunar incision, and permitted to fall through the flap, and remain below it.

One other point. The penis, in these cases, is frequently placed so high that the urine very readily escapes over the sides of the cleft. In order to obviate this as much as possible, as it would certainly interfere more or less with the union of the flap, the doctor drew down the penis, and fixed it with a ligature. The cicatrical contraction had, to a great extent, forced back the hernial protrusions which, perhaps, always exist. In one case the cleft is perfectly closed. Of course there is no power of retaining urine, and the patients wear a rubber urinal with comfort. In the second case a small opening still exists, which can be very readily closed.

Dr. Maury will probably publish these cases, with illustrations, in "The Photographic Review." This is a new bi-monthly, illustrative of interesting cases, with notes. This novel addition to medical literature will prove welcome, as the superiority of photography to other means, for illustrating disease, has been very fully tested. The co-operation of the different gentlemen connected with the large hospitals has been secured, and material will be supplied in abundance. I have received the first issue (October, 1870), containing very excellent photographs of Multilocular Hydatid Tumor of the Leg, with notes by Prof. Gross; of Meningocele, with notes by Prof. Agnew; of Horny Tumors of the Face, with notes by W. H. Pancoast, M.D.; and of Keloid Tumors in the negro, under the care of F. F. Maury, M.D. At the end of the year the six numbers may be bound together, forming a handsome volume. This journal is well worth six dollars, the price of subscription, which may be sent to J. B. Lippincott & Co., Philadelphia.

Dr. Maury also had the kindness to present me with the report (reprinted from the "American Journal of the Medical Sciences," April, 1870,) of a case of stricture of the œsophagus, in which he performed gastrotomy. I copy the principal points from the report.

In May, 1868, the patient, aged 25, was suddenly seized with choking sensations and violent vomiting. Such paroxysms soon became of daily occurrence, and the saliva upon being swallowed shortly afterwards rose to the mouth. Deglutition at times was readily performed for several successive days. Again, for prolonged periods, not a morsel of food could be retained for more than a few moments. The diet consisted of broths, soups, and an occasional glass of wine. He began to emaciate and lose strength, and sought advice in July, 1868. Upon exploration with a gum-elastic bougie, somewhat below the medium size, a diminution in the calibre of the œsophagus was readily detected near its cardiac orifice; but at no subsequent period could even a small instrument be made to pass the stricture. No history of cancer in his family, and no irritating substance had been swallowed. There was a feeling of constriction and suffocation upon the injection of food. No pain at the seat of stricture. The patient acknowledged having had, at the age of seventeen years, an indurated chancre and buboes, which were followed by a papular eruption. The strength was sustained as much as possible, and hydrarg., bichloride, and potas. iod.,were exhibited. After Jan. 1st, 1869, the tortures under which the patient had been laboring were aggravated; emaciation had become extreme; in the early part of April prostration confined him to his bed. He was as helpless as a child. Agonizing pains in the extremities, but more especially along the superficial surface of the tibiæ, now supervening, deprived him of rest both night and day. At the end of three weeks, he began to rally, and, after persevering efforts, to swallow small quantities of liquid. Having gained sufficient strength to leave his bed, he even went into the open air for short walks. About the middle of May he could no longer swallow anything. Resort was now had to enemata (brandy, beef extract, and milk punch,) upon which he subsisted for six weeks. The patient now earnestly importuned for an operation, but at this time, yielding to the earnest solicitations of the patient was considered unjustifiable. He continued to sink. The fast failing strength was sustained by enemata, and the pains controlled by morphia. Unsatisfied hunger caused the greatest distress. Finally, after consultation, it was decided to open the stomach. June 25th, 4 P. M. The patient, under the influence of chloroform, was

placed upon his back, the left side being somewhat elevated by means of folded blankets. A curvilinear incision, the convexity presenting towards the median line, was commenced at the external extremity of the seventh intercostal space, and carried downwards and outwards for nearly four inches, exposing the sheath of the rectus muscle, which was slit upon a groved director. The fibres of the rectus were next separated, partly with the fingers, partly with the scalpel, the cutting edge of the latter being used as little as possible, with the view of avoiding hæmorrhage. The posterior lamella of the sheath of the rectus, the transversalis fascia and the peritoneum were next successively divided on a director, when the stomach was seen projecting below the margin of the liver. It (stomach) was firmly grasped by the forceps, and a curved needle, armed with a silver wire, was passed through its anterior wall, in the direction of the vertical line of the body, the points of entry and exit of the body being about an inch and a quarter apart. Two other needles, armed in the same manner, were then passed from left to right, and made to cross the first at right angles, the wires including that part of the stomach to be opened—a point about two inches to the left of the pylorus. The first wire was then withdrawn, and, by means of a pair of scissors, the stomach was opened in a perpendicular direction to the extent of an inch. The wires previously passed were thus exposed, and, by dividing them, the two sutures were converted into four. There was no escape of fluid into the peritoneal cavity. The viscus was now attached to the edges of the opening in the abdominal walls by numerous silver sutures. A tube, with a single flange, such as is employed when establishing gastric fistule in dogs, was inserted into the stomach, the flange resting upon the edges of the external wound and secured by tapes. The wound through the abdominal parietes was then closed by ordinary sutures. Two hours later the patient began to sink, and at six o'clock, the following morning, died. Post mortem nine hours after death. Body much emaciated; small intestines and stomach contracted and empty; peritoneum perfectly smooth and uninjected; all the internal viscera normal; no enlargement of lymphatic glands. A dense, firm stricture of the œsophagus was observed just within its cardiac orifice. The stricture produced such complete obliteration of the calibre of the œsophagus as scarcely to admit of the passage of a

probe. A microscopical examination of its substance, made by Drs. Pepper and Tyson, gave no evidence as to its nature except that it probably was not cancerous.*

I need scarcely tell you that the faculties of the hospitals and colleges here have expressed themselves as adverse to conducting clinical instruction in the presence of students of both sexes. I cannot give you the views of the profession here, in a more condensed form, than is contained in the following "Remonstrance against clinical instruction being given to classes composed of both sexes," and signed by the faculties of the University of Pennsylvania, Jefferson Medical College, the Pennsylvania, Philadelphia, Episcopal, Wills, St. Joseph's, St. Mary's, the German, Children's, Charity, and Howard Hospitals; by the Northern and Philadelphia Dispensaries; and by the physicians at large of the city of Philadelphia:

"I. Clinical instruction in practical medicine demands an examination of all the organs and parts of the body, as far as practicable; hence, personal exposure becomes for this purpose often a matter of absolute necessity. It cannot be assumed, by any right-minded person, that male patients should be subjected to inspection before a class of females, although this inspection may, without impropriety, be submitted to before those of their own sex. A thorough investigation, as well as demonstration, in these cases—so necessary to render instruction complete and effective—is, by a mixed audience, precluded; while the clinical lecturer is restrained and embarrassed in his inquiries, and must, therefore, fall short in the conclusions which he may draw, and in the instruction which he communicates.

"II. In many operations upon male patients, exposure of the body is inevitable, and demonstrations must be made which are unfitted for the observation of students of the opposite sex. These expositions, when made under the eye of such a conjoined assemblage, are shocking to the sense of decency, and entail the risk of unmanning the surgeon—of distracting his mind, and endangering the life of his patient. Besides this, a large class of surgical diseases of the male is of so delicate a nature as altogether to forbid inspection by female students. Yet a complete understanding of this particular class of diseases is of pre-eminent importance to the community. Moreover, such affections can be thoroughly studied only in the clinics of the large cities, and the opportunity

* This is the first operation of gastrotomy for the obstruction of the œsophagus in this country, and the tenth on record. All the cases died within a few hours, except one, which lived twelve days.

for studying them, so far from being curtailed, should be extended to the utmost possible degree. To those who are familiar with such cases as are here alluded to, it is inconceivable that females should ever be called to their treatment.

"III. By the joint participation, on the part of male and female students, in the instruction and in the demonstrations which properly belong to the clinical lecture room, the barrier of respect is broken down, and that high estimation of womanly qualities, which should always be sustained and cherished, and which has its origin in domestic and social associations, is lost, by an inevitable and positive demoralization of the individuals concerned, thereby entailing most serious detriment to the morals of society."

ARTICLE VI.—*Prof. Beale and his Doctrines.* By I. N. DANFORTH, M.D., Chicago.

No account of the rise and progress of cell doctrines, however meagre, can be considered complete which does not embrace a review of the labors and views of Prof. Lionel S. Beale, of London. It is, I think, perfectly safe to affirm, that Prof. Beale is the most accomplished microscopist living; and as this is an era of skillful microscopists, it is probably equally safe to say, that no other microscopist has ever equaled him—not even excepting Quekett and Goodsir. He is peculiarly expert in the delicate manipulations necessary to the satisfactory, or at least profitable, use of the microscope; and well he may be, for his skill is the outgrowth of long years of such devoted labor as can only be expected of an ardent enthusiast, who is fully impressed with the belief that he has "work to do in the world."

Prof. Beale has also greatly extended our knowledge as to modes of preparing tissues for examination with high powers, staining tissues, making fine injections, and successfully preserving the most delicate textures for long periods of time. He has made a very patient, laborious, careful, and, I may add, highly successful, study of the use of the highest powers, and their adaptability to investigations upon all classes of healthy and morbid tissues. Indeed, he may be regarded as the true originator of high powers, as the term is understood at the present day.

Up to the year 1860, the sixteenth-inch objective was the highest power in use, and its employment was necessarily restricted to a very few of the more expert microscopists. In 1859, Dr. Beale desired Messrs. Powell & Lealand to attempt the construction of a glass "with a magnifying power double that of the sixteenth," and this they succeeded in producing the following year; it being the "first twenty-sixth ever made." Its magnifying power is 1800 diameters, and its value as a "working glass" was found by Prof. Beale to be very great. Encouraged by his success, he again applied to Powell & Lealand to manufacture an objective of still greater power; and, in 1864, in the month of October, they completed a fiftieth-of-an-inch objective, with an amplifying power of 3,000 diameters. Those who are practically conversant with the use of the microscope, will at once understand the difficulties which had to be overcome in the production of this "wonderful glass," as Dr. Beale so justly calls it. They will also call to mind the exquisite delicacy of manipulation requisite for the successful preparation of specimens to be examined therewith. Concerning its qualities as a "working glass," Dr. Beale says, "it defines quite as well as the twenty-fifth, and there is no difficulty in obtaining plenty of light for the illumination of the objects." (How to Work with the Microscope, page 286.)

Until the ice was thus broken by Beale, it was supposed to be practically impossible to use objectives of such immense power, on account of the presumed impossibility of focussing, and of obtaining illumination and defining power; and it is a somewhat unaccountable and very mortifying fact, that the pioneer in this most praiseworthy movement, was immediately assailed and ridiculed by several of his cotemporaries, in London and elsewhere, for attempting to accomplish that which could *not* be accomplished. Such extremely high powers, however, are never likely to come into very general use, both on account of their very great expense, and the extreme difficulty of working with them.

But Dr. Beale has conferred an infinitely greater service on the world of microscopists, by the introduction of a very simple and equally efficient manner of preparing tissues for examination. This method consists, essentially, in saturating the specimens with the purest and strongest glycerine, to which has been added a

small proportion of acetic acid; and in describing the details of the process, so clearly and intelligibly, that the merest tyro can prepare and preserve his own specimens. After a somewhat extended experience in the preparation and study of the tissues, by Dr. Beale's method, I am quite convinced that it is much superior to any other with which I am acquainted.

The carefully-written and elegantly-illustrated works of Prof. Beale are not so generally sought as they should be; two of them, however, namely, "How to Work with the Microscope," and "The Microscope in Practical Medicine," have met with quite an extensive sale in this country and abroad. But his "Archives," "Kidney Diseases," and other works, are not so generally found in the libraries of physicians. All of these works are beautifully and profusely illustrated. In the hands of their author, the art of making drawings of microscopic appearances has assumed a new phase entirely.

Having thus cursorily glanced at what Dr. Beale has accomplished for microscopy as a branch of medical science, we are now prepared to examine his peculiar views regarding the cell and its functions.

In the first place, it is but just to state, that Dr. Beale's theories are not the expression of a mere *hobby;* nor have they been constructed with the intention of bolstering up any preconceived notions regarding the nature of vitality or its origin. When he first commenced his remarkable microscopical studies and observations, he had no theories peculiarly his own. His present views, therefore, are but the legitimate and necessary outgrowth of his laborious and persistent observations upon the tissues, at all stages, both of their development and their disintegration.

At the very outstart, we find that Beale practically repudiates the old notion of the "type cell," which was looked upon as "an extremely monotonous structure," (Virchow), consisting essentially of *cell wall, contained fluid, granules, and nucleus.* According to the old theory, the cell wall was considered not only a very *important* part of the cell, but the part which maintained the nearest and truest relations with vitality. According to Beale, the cell wall is not only unimportant, but very often absent; and, when present, is merely the result of secondary changes, occurring upon the surface of the cell. "All that is essential to the cell, or

elementary part, is *matter that is in the living state—germinal matter*, and matter that *has been in the living state—formed material.*" (Protoplasm, page 55.)

In studying Dr. Beale's views, it will be most convenient to take up successively the so-called "nucleus," or germinal matter, and the surrounding cell-contents, or "formed material."

First—the nucleus. Prof. Beale believes that the nucleus is the only portion of the cell which is in the "living state;" it is the true ultimate repository of vital power, and therefore, practically, the ultimate anatomical living element. This body is always and everywhere easily distinguishable from the older, non-living portions of the cell—the so-called "formed material"—by its property of being readily stained by an ammoniacal solution of carmine. This discovery was announced by Prof. Beale several years since, and it has since been abundantly confirmed by a multitude of observers in different parts of the world. Indeed, it is now quite generally recognized by microscopists as a reliable test for the purpose of distinguishing the nucleus, or "germinal matter," from the proper cell-contents, or "formed material." The relative size of the nucleus depends upon the age of the cell, and the accessibility of nutrient material. In young cells, situated quite near their source of pabulum, as the lower stratum of epithelial or epidermic cells, the amount of germinal or living matter is very large, forming, at the *commencement* of their development, their *only* constituent. As they approach the surface, and recede from their source of nutrition, the "germinal matter" decreases, while the "formed material" increases. The same rule holds good in all varieties of cell growth, whether healthy or morbid—whether animal or vegetable. In his earlier lectures on the structure and growth of the tissues, (Archives of Medicine, vol. II,) Prof. Beale states, that this germinal matter is "granular" in its structure; in his recent publications, he states that it is "*clear, transparent, structureless, formless*," (Protoplasm, p. 48.) This apparent change of opinion is to be accounted for by the fact that Dr. Beale has recently very greatly increased his powers of observation, by the acquisition of the fiftieth-of-an-inch objective already alluded to.

According to the views which I have attempted to explain, the nucleus or germinal matter is the essential part of the cell; it

is the mysterious seat of vitality—the repository of life, the ultimate, indivisible, anatomical element. All vital actions, of whatever nature, depend upon the forces lodged within this simple and very minute body. Assimilation, secretion, locomotion, reproduction and thought depend, directly or indirectly, upon the exercise of the powers locked up in this infinitesimal speck of living matter. Its power of growth is practically without limit. So long as the germinal matter is supplied with a sufficient amount of appropriate pabulum, it grows and subdivides indefinitely. Each subdivision of germinal matter—each little mass which is thrown off from the parent mass, is endowed with all the powers and capabilities of the parent mass; thus each centre of growth, or nucleus, *may*—and if favorably situated and adequately nourished, *does* become, the source of very many new centres of growth. Very recently, Prof. Beale has conferred upon the germinal matter the name of "*Bioplasm*" as a substitute for the word "*Protoplasm*," which is already loaded down with more theories than it can conveniently carry. Regarding the use of this word, Dr. Beale says: "The term I propose to apply to the *living* or *germinal self-propagating* matter of living beings, and to restrict to this, is *Bioplasm.* Now that the word *Biology* has come into common use, it seems desirable to employ the same root in speaking of the matter which it is the main purpose of biology to investigate. *Bioplasm* involves no theory as regards the nature or the origin of the matter. It simply distinguishes it as *living.* A living white-blood corpuscle is a mass of *bioplasm*, or it might be termed a *bioplast.* A very minute living particle is a bioplast, and we may speak of living matter as bioplasmic substance." ("Disease Germs," page 12.)

Secondly: the "formed material." Formed material constitutes all that part of the cell which *is not* stained by the action of the carmine solution; and it is a remarkable fact, that, although the carmine fluid must necessarily *pass through* the formed material, in order to come in contact with the germinal matter, the former does not become tinted thereby. But formed material is not by any means limited to the proper "cell contents," (periplastic substance of Huxley.) The so-called intercellular substance, which finds its most perfect type in cartilage, is also formed material; while the cartilage cells are chiefly composed of

bioplasm, or living matter, from whence is derived the newly-formed "material" for the repair of cartilage. The same rule holds good as regards every other tissue; every muscle, every bone, every ligament, every gland, consists largely of "formed material," but at the same time we find myriads of minute masses of germinal matter, which are constantly assimilating new pabulum, constantly growing, constantly dividing, and constantly being converted into "formed material," to supply the place of that which is being worn out and converted into effete matter. Thus every atom of nutrient matter is converted first into germinal matter, (living matter, bioplasm) and next into formed material. Following this doctrine out to its practical application, we find that mucus is the *formed material* of the mucous corpuscle, the bile the *formed material* of the hepatic cell, the muscular fibril the *formed material* of the muscle cell, and the ultimate nerve fibre the *formed material* of the nerve cell. In other words, it is the proper function of "germinal matter" to convert pabulum first into other "germinal matter" like itself, and then into tissue like that of which it forms an integral part. That which was yesterday lifeless pabulum, is to-day living "germinal matter;" that which to-day is germinal matter, will to-morrow be formed material. As the formed material is increased at the expense of the germinal matter, the latter must of course decrease in exact proportion to the increase of the former; in other words, just *as* fast as *living* germinal matter decreases, just *so* fast does *non-living* formed material increase. Thus the formed material is made to subserve the purpose of a protective coating or envelope to the living matter or germ, shielding it from the destructive influences of heat, cold and moisture, until it shall, perchance, reach its appropriate *nidus* for future growth and development. This fact is peculiarly illustrated in the ovum of the tape worm, which after various vicissitudes and exposures, at last finds itself favorably situated for manifesting the developmental powers which have, for a longer or shorter time, been in a state of latent vitality.

Prof. Beale holds that the formed material is non-living matter; that it has, to all intents and purposes, ceased to live; but his test of vitality is the presence or absence of the *power of germination or reproduction.* This idea is very clearly expressed in Beale's

edition of Todd and Bowman's Physiology, Part I, page 12, namely, "the *entire cell* or elementary part is not alive. The inner (germinal) matter is living—the outer formed matter has ceased to live. The inner matter alone is capable of growth, of germination. It may, therefore, be called living or germinal matter, in contradistinction to the passive formed matter which envelops it." Again, he says, "the difference between germinal or living matter and the pabulum which nourishes it, on the one hand, and the formed material which is produced by it on the other, is, I believe, absolute. * * * * The ultimate particles of matter pass from the lifeless into the living state and from the latter into the dead state suddenly. Matter cannot be said to *half live* or *half die.* It is either *dead* or *living*, *animate* or *inanimate;* and formed matter has ceased to live." ("Protoplasm, or Life, Matter and Mind," page 36.) I think the great majority of histologists will find themselves compelled to dissent from this conclusion, if the term *dead* is to be used in its ordinary acceptation. It is simply equivalent to saying that a large proportion of every tissue and organ of the human body has ceased to live. For my own part, while I cannot claim that the mucus, or the bile, or the hair, or the free extremities of the nails, or the outer layer of the epidermis, consist of living matter, I certainly cannot admit that the muscular substance of my heart, or the nerve fibrils which convey external impressions to my sensorium, or the delicate membrane which lines my blood vessels, and in great part forms the capillaries of my body, are, either or any of them, composed essentially of dead matter. I do not think Dr. Beale means, or would claim this. It is much more probable that he intends to use the term "dead" in an arbitrary, technical sense, and as a convenient way of expressing the difference in developmental power between germinal matter and formed material. Nor do I think it quite just to conclude that, because one portion of a muscle can no longer assimilate nutrient matter and produce other material like itself, it has therefore ceased to live. Would it not be just *as* correct to say that an octogenarian, in whom the procreative power had passed away, had therefore ceased to live? If the presence or absence of the power of reproduction is really the test of the presence or absence of life, is not the conclusion as fair and as ogical in the one case as in the other? The term "dead," "non-

living" or "lifeless" matter, as applied to formed material or the non-germinal portion of the solid tissues, is, it seems to me, a most unfortunate one. It can scarcely do otherwise than mislead very many of those, at least, who are commencing their medical studies, while it will be very apt to confuse and pester those who are more acccustomed to groping their way among the pitfalls of medicine. Let any practiced observer prepare a specimen of frog's muscle, and properly stain it with carmine, and then carefully examine it with a fifth or eighth-inch objective; he will find himself forced to the conclusion that if *only* the minute masses of "germinal matter" are *living*, the frog must have a wonderful capacity for jumping by the aid of dead muscles. We need not value Prof. Beale's microscopic observations any the less, however, merely because some of the conclusions which he draws from them are not quite acceptable.

Prof. Beale is a vigorous and outspoken opponent of the doctrine—at the present time so loudly trumpeted—of that small, but rather select school of "advanced thinkers" in England, who are assiduously laboring to place vital force and chemical force on the same level. Within the past few years, this species of heresy has taken a new lease of life, and clothed itself in new apparel. "Protoplasm," in assuming to be the "physical basis of life," has attempted to eject vitality, *per se*, from the organic world; "spontaneous generation" is re-enacting the old farce, under the auspices of new and not less skillful performers; but, from whatever stand-point vital force has been assailed, it has found in Prof. Beale a steady, unflinching and able advocate. On this subject, the writings of Dr. Beale are models of controversial labor. In conclûsion, the essence of the doctrines of Beale may be briefly summarized in the following manner:

First: the *germinal matter*, nucleus, bioplasm, (endoplast of Huxley) is the essential, potential, vital and active portion of the cell; it is the ultimate repository of vitality, and wherever a mass of germinal matter exists, however minute it may be, or whatever form it may assume, *there* a cell exists, for the germinal matter is, practically, the cell.

Secondly: the *formed material*, cell contents, (periplast of Huxley) is matter which has resulted from changes incident to the death of the germinal matter; when the latter dies it becomes

formed material; all formed material *was* germinal matter; all germinal matter *will be* formed material. Formed material is chiefly concerned in the *function* of the tissue or organ whereof it forms a part; while germinal matter is chiefly if not exclusively concerned in reproduction and repair. And the distinction between these two forms of matter seems to be absolute; the dividing line is always sharply drawn; there is no neutral ground between them; or, as Dr. Beale expresses it, "matter cannot be said to *half live* or *half die.*"

Thirdly: the chemical and physical views of life (to which I have already alluded) are utterly insufficient to account for the phenomena of life, or indeed any one of them; "spontaneous generation" is likewise equally baseless and without substantial proof. On this latter point, the following passage is sufficiently explicit: "it must then be regarded as a fact that living beings spring from pre-existing living beings, and that there is no such thing as spontaneous generation." ("Protoplasm," page 75.) In this connection, it is proper and very gratifying to remark that Prof. Huxley, in his recent address before the "British Association,' takes the strongest possible ground against the doctrine of "spontaneous generation."

The doctrines of Beale, considered as a whole, have found favor with many, if not most, of our most thoughtful and laborious histologists; and whatever of error may or may *not* be contained in his theories concerning cell-action, he has certainly greatly advanced our knowledge of structure. Moreover, I think he is clearly entitled to the credit of having taught us, more than any other man, how to properly and profitably "work with the microscope," as an aid to diagnosis, and the practical study of pathology; and for this, if for nothing else, he deserves the thanks and gratitude, not of microscopists alone, but of the whole profession.

I have attempted in this article, and those which have preceded it, to give a somewhat complete, though necessarily very brief, history of the rise and progress of the more prominent cell doctrines up to the present time. In doing this, I have already disclaimed, and hereby distinctly disclaim any title to originality, either of thought or method; and I have tried to be somewhat careful in indicating the sources of my information. My only

object has been to place before the readers of the "Journal" information for which I had myself been seeking, and very much felt the need of, in the simplest and most concise manner. In future articles I purpose taking up some other topics, holding a near relation to cytology.

ARTICLE VII. — *Case of Irregular Innervation.* By WALTER HAY, M.D., of Chicago.

The following analysis of a curious case of irregular innervation is presented in order to elicit the criticism of experts in nervous pathology, with the view to determine, if possible, its correct diagnosis, and suggestions for its treatment:

B—— ——, No. 80 Centre avenue, a robust Irish girl, has always enjoyed excellent health, aside from the nervous malady about to be described, which has existed from her earliest recollection, during which time the history of the case has been unmarked by any incident indicative of the cause of the malady, since its initial point, which appears to have been a severe fall upon the head sustained at the age of eleven months. The excellence of her general health is abundantly demonstrated by her present robust appearance, and the absence of any perceptible disturbance of the functions of organic life.

The characteristic features of the case are as follows:

1st, and most prominent (to her) partial *anæsthesia*, with *formication* of the surface and extremities, of the left arm, muscular power nearly normal, although her grasp of an object is not perfectly secure when her attention is diverted from it.

2nd. Constant *clonic convulsions* of the flexor muscles of the right arm, with *diminished muscular power* (*partial paralysis.*)

These conditions are occasionally apparent in the lower extremities in a lesser degree than in the upper, but generally their innervation is but slightly disturbed.

3rd. Pupil of the left eye nearly normal, somewhat contracted, perhaps, though the apparent contraction may be merely relative.

4th. Pupil of the right eye widely dilated and but slightly sensible to light.

5th. Visual range of the right (or dilated) eye about three times as long as that of the left (contracted eye), that is to say, objects just visible to the left eye at the distance of one foot and a half, are perceptible to the right eye at the distance of a little more than four feet.

6th. Reflex irritability of the spinal centres excessive, manifested in the right, but absent in the left or anæsthetic arm. Thus, if while carrying an object, such as some culinary utensil, dish, plate, etc., she should chance to be touched or spoken to suddenly and unexpectedly, the object would immediately be jerked upward by the convulsive movements of the flexors of the right arm.

7th. The point of the tongue when protruded is very slightly deflected to the right.

Having become habituated to this peculiar condition of the nervous system, the patient had regarded it as a subject for vexation or merriment rather than of anxiety, until recently, when its aggravation threatens to interfere with the performance of her daily avocation, that of a cook.

The diagnosis of such a case is of course purely inferential, to be demonstrated only by autopsy. The diminished (and altered) sensibility of the left arm would seem to indicate lesion, involving the posterior roots of the brachial plexus of the left side, together with more or less derangement of the gray substance of the central mass and of the posterior cornua of the opposite or right side above the 4th cervical vertebra, the plane of exit of the plexus from the cord, by reason of the decussation of the conductors of sensitive impressions in the gray substance of the cord. The gray substance, however, can be but partially involved, as from the almost perfect integrity of the innervation of the lower extremities, most of the conductors of sensitive impressions must remain intact.

The location of the lesion in this division and in this region of the spinal axis accounts likewise for the increased reflex activity in the muscles of the right arm, as the source of irritation must necessarily be above the corpora pyramidalia, the point of decussation of the voluntary motor conductors. Moreover, the partial structural integrity of the antero-lateral columns and of the anterior cornua of gray substance is demonstrated by the persistence (although diminished) of voluntary control of the muscular apparatus of the affected member.

This great reflex activity, together with the absence of hyperæsthesia, demonstrate the integrity of the posterior columns of the cord. The next point to be considered is the divergence of the tongue to the right, for the causes of which we must look back to the origin of the hypoglossal nerve in the groove between the corpora pyramidalia and olivaria (Gray), or from the gray nucleus upon the floor of the medulla oblongata (4th ventricle ?) (Stilling), near the posterior median furrow. In the same region of the cord, likewise, we find the origin of the two roots of the fifth nerve to which we must look for the sources of the perverted innervation of the iris of the right eye. The apparent difference in sensibility of the two retinæ is probably rather apparent than real, the greater range of vision in the right eye being due rather to the larger number of visual rays permitted to impinge upon the retina by reason of the greater degree of dilatation of the pupil of that side.

The absence of paralysis forbids the supposition of any structural change in the conductors of volitional impressions. The morbid phenomena seem to classify themselves under the two heads, *i. e.* diminution of sensitive, increase of motor energy; from which the inference seems logical, that the former is centric, originating in structural lesion of the gray substance of the cord, while the latter is a reflex effect of (probably) the same cause.

ARTICLE VIII.—*Cases from the Surgical Clinic of Professor Moses Gunn, of Rush Medical College.* Reported by H. F. CHESBROUGH, M.D.

[Continued.]

X. P. P., a young lad of sixteen, who had been before the class many times during the previous year for treatment of hip-joint disease in the suppurative stage, came to the clinic on the first Saturday in October, for resection of the head of the femur. When the lad first came under observation, his hip was suppurating extensively. Still, as cod liver oil and iodide of potassium agreed with him—as his appetite remained good, and the boy was not losing ground, no operative procedure was deemed necessary.

But at last the patient evidently began to lose flesh and appetite, and to show signs of being overcome by the severity of the disease. Now hope of a cure by anchylosis was abandoned, and all reliance placed in an exsection as the only chance of saving the patient's life.

Dr. Freer was present, and assisted in the operation. When the joint had been laid bare by a T-shaped incision, and the capsule freely laid open, an assistant used the leg as a lever to force the head of the femur out of the acetabulum, and the bone fractured just below the lesser trochanter. This was considered a very unfortunate accident at the time, but on examining the fragment after it had been removed, it was found to be carious at the base of the lesser trochanter, as well as in the head and neck. The lamellar structure of the shaft was very thin and weak, which accounted for the ease with which it fractured.

The wound was dressed with a pledget of lint, washed out with a solution of carbolic acid, and moderate extension and counter-extension maintained. The case progressed favorably, and on Saturday, Nov. 12th, 1870, he again appeared in the clinic, walking readily with a crutch, and the wound entirely healed. Up to this time he had not been allowed to walk without a crutch. It is evident now that he will soon be able to walk with merely a cane, and that the operation has not only saved his life but also given him a very useful limb.

XI. On the evening before the "Fourth" (July, 1869), Mrs. M. and her husband had a little discussion while under the influence of mountain dew. The next morning she discovered that her left shoulder was lame and painful, and procured some liniment for it. After about nine weeks she concluded that the shoulder did not get well quite fast enough, and applied to the Dispensary for relief. She was told that her arm was dislocated, and to come again on Saturday. About three weeks after this, she put in an appearance on Saturday (Oct. —). After she had been fully anæsthetized, the adhesions which the head of the bone had formed with the tissues about it were first forcibly and thoroughly broken up. The arm was then raised up by the side of the head, and extension by two assistants was made, while Professor Gunn fixed the shoulder with both hands, and with the tips

of the fingers followed the head of the humerus as it retreated upward from the axilla. When the head of the bone was sufficiently elevated, he endeavored to maintain it in position, while the assistants, still keeping up extension, gradually swept the arm downward till it rested by the side of the body. The third effort was successful. The arm was then put in a sling, and bound up securely in its place by the roller bandage.

The woman has since been back to the College, and pronounces her arm as good as ever.

XII. December 18, 1869, brought another case of downward dislocation of the right humerus. This case was of six weeks standing. The patient was treated in a similar manner, and at the first trial (the dislocation being much more recent) the luxation was reduced.

The arm was fixed by a roller, and worn in a sling, and was a perfectly serviceable member in a very few weeks.

Selections.

Suspension in Spinal Affections.—By BENJAMIN LEE, M.D., of Philadelphia. Read before the Medical Society of the State of Pennsylvania, June, 1870.

There is no single characteristic of the human form which more entirely commands our admiration, and more strikingly distinguishes it from those of the various families of the brute creation, than its erectness. So universally is this fact recognized, that it has been incorporated into our language. Considering an erect carriage and a well-poised head as an index, and hence a type, of a perfect physical organization, we, in common with the Germans, have carried the idea into the domain of ethics, and designate the individual who exhibits, in his dealing with his fellows, a healthy and undistorted moral nature, an *upright* man.

It is to the spinal column, and its mode of articulation with the pelvis and the head, that this noble peculiarity of our race is due. Any diseased action in either the essential or accessory constituents of this important organ must sooner or later result in the impairment of this distinguishing feature. Three deductions have

been made from this well-understood fact, which have been shared, at digerent times to varying degrees, by the medical profession and the general public.

1. That a loss of erectness of figure, as a rule, indicates spinal distortion, and hence diseased action in either the spine or its motor apparatus.

2. That the distortion is not only an indication, but an actual element, of the disease, directly tending to aggravate and perpetuate the morbid conditions; and hence,

3. That a restoration of the distorted spine to or towards its normal position is an important means of checking the destructive processes and restoring it also to a healthy state.

It is on this last proposition that the mechanical treatment of spinal distortions is rationally founded. Two methods of effecting the result which it contemplates early suggested themselves. They may be designated as the *method of counter-extension* and the *method of counter-pressure*,—the first being an effort to straighten out the curved spine by traction in the line of its axis, acting in opposite directions from its two extremities; the second to unbend the curve by forces applied at right angles to the line of its axis,—in one direction at its two extremities, and in the opposite direction against its point of greatest convexity. Both methods may be practically carried out in two ways: either by means of apparatus worn upon the person, indifferently called braces, supporters, assistants, splints, etc., which I shall designate as *spinal instruments*, or through the medium of apparatus acting from some fixed point of support outside of the person, which I shall call *spinal machines*. I have already, elsewhere,* assigned my reasons for believing that spinal instruments should be made only on the principle of counter-pressure. My object in the present essay is to indicate the perfect applicability of the principle of counter-extension to the construction of spinal machines, and to call attention to the rapid and admirable results attainable by its means.

I am well aware that for years past it has been the fashion for medical men to decry extension of the spine by machinery as unscientific and dangerous, those who write with special reference to these affections treating it with contemptuous ridicule, while systematic authors entirely ignore it. It has had powerful advocates, however, on both sides of the water. Among the more important in England may be mentioned Darwin,† Shaw,‡ and

* Transactions American Medical Association, 1866; and Contributions to the Pathology, Diagnosis, and Treatment of Angular Curvature of the Spine. Philadelphia, J. B. Lippincott & Co., 1867.

† Zoonomia, or the Laws of Organic Life. By Erasmus Darwin. Vol. iii, p. 140 *et seq.*

‡ Observations on the Causes and Early Symptoms of Defects in the Form of the Spine, Chest, and Shoulders. By John Shaw. London, 1827.

Sheldrake,* and, in this country, Kissam, of New York, and Prof. Mitchell,† of this city, the latter of whom, with that carelessness of purely theoretical criticism which characterized the man, was particularly enthusiastic in its support, and, I may add, as successful in its employment. A surgeon of many years' standing in the navy of the United States is a living monument to the admirable results which that physician obtained in cases of spinal caries.

The plan which he adopted was the seemingly rather severe one of suspension by the head in the erect posture, the weight of a portion of the trunk and of the lower extremities being the extending force. This differed altogether from that of Shaw, who placed his patient in a recumbent posture and applied traction at the head and pelvis, and, to a considerable extent, from those of Darwin and Sheldrake, who, though they relied upon the weight of the body for their force, had their patient supported upon an inclined plane. Nevertheless, the idea was not a new one with him, by any means; for we find Bampfield saying that "in the erect state of the body the spine can be stretched by swinging by the head or by the hands," and that, "if it be the intention to stretch the upper half of the spinal column, swinging by the head will more particularly effect it, whilst the weight of the lower extremities will also extend the lower vertebræ in some degree." The portion of the appliance which Dr. Mitchell used, which was claimed by him as his own idea, as I understand it, was the *go-cart* provided with the means of suspension, which had for its object the conjunction of locomotion with extension, and which he termed, appropriately enough, his "spine-car." It is to this plan of extension by partial or complete suspension in the vertical position, whether in the standing or sitting posture, that I desire for a few moments to call the attention of the society. And, first, I wish to point out certain weak points in the treatment of spinal caries by counter-pressure, in which I consider that it is most advantageously supplemented by this method. Our avowed object in making use of antero-posterior force in a horizontal plane is to substitute the oblique articulating processes, in great measure, for the vertebral bodies at the seat of disease, as the axis of support for the weight of the head and trunk. Now, while it is true that these processes are of comparatively firm texture, and almost invariably free from disease, it is also certain that the constant endurance of a weight so much greater than that which nature intended them to bear must be attended, in time, with a certain amount of absorption of their tissue. Besides this, their opposing surfaces are so oblique that much of the weight will necessarily

* A Treatise on Diseased Spine and on Distorted Spine, with Cases to illustrate the Success of a New Method of Cure. London, 1816.

† North American Medical and Surgical Journal, No. 1, 1826.

fall upon their ligaments, which must become more or less relaxed, and thus permit the processes to slip by one another, distorting the articulation, and diminishing the height of the patient. This is one unfortunate result of this method. The other consists in the fact that we have no means of determining at what point in the column, intermediate between our opposing forces, either above or below the seat of the projection, the pressure applied against the spine in an anterior direction shall cease to exert its force. Theoretically, it should do so just where the abnormal projection meets the normal line of the column. But if there happen to be a weaker point than this, the force will be transmitted to that point, and we shall have an incurvation produced, which, when below the projection, assumes the very troublesome form known as *lordosis*. This is a second evil, which can neither be prevented nor corrected by apparatus worn upon the person. But I think it will be acknowledged that extension by suspension —taking off this destructively abnormal weight from the processes, and gently stretching out the consecutive curve—is admirably adapted to palliate, if not to entirely remove, these difficulties.

The degree of pressure, too, which we are compelled to make use of in redressing the curve is sometimes so great as to provoke a superficial abrasion of the cuticle. This is especially apt to be the case in warm weather. Under such circumstances, modified suspension furnishes an admirable substitute, for a sufficient length of time daily to give an opportunity for reparation of the surface. It is also especially adapted to caries in the cervical region, affording the patient the most complete and delightful relief from the agonizing pain or wearisome discomfort which the weight of the head gives rise to.

I present, for the inspection of the society, three different pieces of apparatus, or machines, in which this principle is applied. And, in order that you may the better appreciate the mode of application, and the entire ease with which they are used, some of my patients who have been treated in this manner have kindly consented to be present and allow me to demonstrate their action.

Case I.—The little patient whom I now introduce to you is seven years old, rather short of stature, as you see, but ruddy and well nourished, having the complete use of his limbs, walking freely, fearlessly, and naturally. When he first came under my care, five years since, he was completely paralyzed in the muscles of the lower extremities, and, to a great extent, in those of the trunk, as indicated by inability to move even the terminal phalanges of the toes, or to maintain the sitting posture. His condition was, in fact, altogether a critical one. The cervical portion of the spine being the seat of caries, and two vertebræ having

been, to a considerable extent, destroyed, the head was tilted back until the occiput rested on the shoulders, and so firmly that it was impossible to insert the finger beneath it, while the skin of this region was acquiring that moist, mucoid character often noticed when cutaneous surfaces are kept in constant apposition. He suffered from constant dyspnœa, respiration being to a great degree diaphragmatic; had frequent attacks of spasmodic gastralgia; was greatly emaciated; passed sleepless nights; and was, as may be imagined, excessively irritable, allowing his mother and nurse not a moment's ease. The application of a splint, provided with a head-piece for producing erection of the cervical spine by means of antero-posterior force, very soon relieved all his most pressing symptoms, but it was some months before he acquired sufficient muscular power in the legs to be able to move the toes. At this time my attention was called by Dr. S. Weir Mitchell, in consultation with whom I first saw the case, to his father's experiments and successes in the employment of suspension. Although greatly prejudiced against its use, I felt that at least no injury could ensue if it were employed with proper precautions, and determined to give it a fair trial, considering that a desperate case justified what I then viewed as a desperate remedy. I therefore had made for him this steel rod, bent at right angles and provided at its lower end, for a distance of about eight inches, as you see, with ratchet teeth on one side. The horizontal portion of this rod, carrying a steel bow, to which the chin and occipital strap could be attached, passes over the head, while the vertical serrated portion is received into a keeper screwed to the back of the little chair in which he ordinarily sat. The straps being adjusted to the head, I am enabled by means of a pinion-key introduced at the back of the keeper, to elevate the rod, and thus extend the cervical spine at will. Conscious of relief, from the complete removal of the weight of the head from the ulcerated and sensitive vertebræ, the little fellow, to my surprise, became at once reconciled to so singular a position, and even enjoyed it. The paralysis now began to diminish with notably increased rapidity, so that he was soon able to sit alone, and could move the legs slightly. With a view to give him an opportunity of exercising these reawakened muscles, and of associating amusement with the necessary confinement, I therefore had a little rocker constructed, upon which his chair could be fastened. This you now see before you. Placing him upon it, adjusting the straps, and making extension, you see how completely the head is supported, and yet with what freedom and fearlessness he rides, turning his head from side to side at pleasure, and bringing almost all the muscles of the trunk and lower extremities into active, though gentle, play. This amused him, and he often spent two or three hours a day upon it, with the effect of greatly increasing his mus-

cular power. He was still, however, unable to walk. In order to teach him to stand and to encourage the natural movements of the legs, I then had this car or perambulator constructed (simply the child's go-cart, formerly so much in vogue for infants learning to walk), with a keeper attached to it posteriorly to receive the ratchet-rod. In this he was at once able to stand up without risk of falling, and soon began to take steps. The paralysis being completely relieved, the general health restored, and the position of the head greatly improved, his mother's anxiety was now aroused with regard to that inevitable accompaniment of carious destruction of cervical vertebræ,—distortion of the thorax anteriorly, and projection of the lower end of the sternum, unquestionably a very unseemly and distressing phase of the deformity. To remedy this defect as far as possible, by bringing the pectoral and other muscles of the thorax into action at the same time that spinal extension was being carried on, I devised—partly in imitation of Dr. Mitchell, and partly acting on a hint contained in a little German work on the "Treatment of Deformities by Curative Gymnastics," by Dr. Nitzsche, director of the "Orthopædeon" at Dresden—the *spinal swing*, a specimen of which I have caused to be erected here for your inspection. The contrivance for the support of the head is the same as in the other machine, viz: the steel bow with the double strap for the chin and occiput, in which the head is exactly balanced. But the elevating apparatus is now entirely different. Instead of the ratchet-rod, we have a stout cord or rope, and in place of a key and spring as an extending force, the patient's own hands and strength of arm. It is not necessary to have a frame constructed like this before you. A pulley may be firmly attached to a joist in the ceiling or over a doorway; the former is preferable, as giving greater length of rope, and, therefore, more freedom and variety of motion. Over this pulley passes the rope. One end of it is firmly attached to the steel bow over the top of the head; the other hangs down in front of the patient's face, and is provided with two movable ovoid blocks, which, sliding on the rope, serve as handles. These are placed from three to five inches apart, according to the size of the patient, and retained in position by a knot under each. The lower one should be about on a level with the top of the patient's head. Now, it is evident that, the headstraps being applied, as soon as the patient makes traction upon the rope by means of the handles, the force is transmitted over the pulley directly to the head, which is thus drawn upward, and that the weight is equally shared by the head and the hands; so that, when the feet are raised from the floor, just one-half the patient's weight, less that of the head, is supported by the cervical spine. It is also plain that, when the disease is below the line of attachment of the arm to the trunk, the entire weight of the body below that point will

be our extending force. The apparatus being under the patient's control, however, it is optional with him what amount of force he shall make use of. In the case of children, it is oftener necessary to caution them against using too much than to urge them to use more. You see this little fellow gradually drawing himself up on his tip-toes, and now actually lifting his feet and allowing me to swing him back and forth, not only without pain, but with positive enjoyment. Under the use of this machine for from one to two hours a day, there has been a gradual amelioration of the thoracic distortion, the ribs assuming a more natural position, and the sternum falling more towards its normal inclination, while the general capacity of the chest has increased. A tendency to chronic and occasionally acute pulmonary catarrh, which more than once threatened to prove fatal, and which I was inclined to attribute in part, at least, to the compressed condition of the lungs, has also almost entirely disappeared.

Case II.—The young girl whom I now bring before you has been under my care since September last. She is seventeen years of age. Her parents are both living. The father suffers from chronic rheumatism, but I am not able to discover any history of strumous antecedents. About a year before her physician called me to see her, her health having been previously all that could be desired, she began to suffer from pain in the back. This increased steadily, and in about six weeks wandering pains began to develop themselves in the head, radiating from the temples. Before long she observed that, after sitting for any length of time, she became stiff and could walk only with considerable difficulty. So great was this rigidity on rising in the morning, that it took at least two hours for her muscles (the flexors of the thigh more particularly) to become sufficiently relaxed to enable her to walk with any comfort. She grew steadily worse all winter, and early the next summer was obliged to give up her trade, which was that of envelop-folding, in consequence of the frequent falls which she had when walking in the street. These falls were caused by a sudden spasmodic contraction of certain of the flexor muscles of the thigh (principally the psoas and pyriform, presumably) of the left side, accompanied by excruciating pain in the hip. This pain and spasm also often attacked her during sleep, causing her to wake with a scream. By this time the head-ache had become very severe, and was often attended by obstinate vomiting. When I first saw her it was almost constant, as well as the pain in the hip already referred to. She was much emaciated, without appetite, not able to stand erect, or to walk across the room unassisted. Her physician had run through the whole list of anodynes without succeeding in relieving the pains, and greatly to the disgust of her stomach. I felt not the slightest

doubt, from the symptoms, history, and attitude of the patient, that there was serious inflammatory, and probably ulcerative, disease going on in the spinal column; but it was impossible to discover its seat, no projection of a spinous process having yet taken place. From the absence of gastralgia, I concluded that it was below the dorsal region, and from the intense pain in the hip, that it was quite low in the lumbar region. I suggested to her physician that, the location of the diseased action not being positively indicated, it would be well to wait a short time before applying anything in the shape of a brace, and meanwhile to give what relief we could by the use of suspension. Accordingly, I caused a spinal swing to be put up directly over the couch on which she lay, and directed her to use it three times a day for ten minutes, gradually increasing the time as she became accustomed to it. This she did very rapidly, owing to the agreeable sensation of rest which the act of extension gave her. By the end of a week I was rejoiced to find her about free from pain, with no vomiting, and quite a creditable appetite. The rigidity of the limbs was diminishing, and she could walk with some ease. By the end of the third week, however, I felt confident that I could detect a slight bulging of the last lumbar vertebra, and at once ordered a splint to be made, to give support in that region. In a week from this time she walked to my office and back, a distance of half a mile, in order to have it applied. Her improvement was now so rapid that at the end of three months she resumed work for half a day, and for the past four or five months has been working her full time, although somewhat against my advice. During the winter she has once even ventured to go to a ball and indulge her terpsichorean tastes. Her menses, which were suspended for several months, returned soon after the application of the splint. She continues to use the swing, and, as you see, although quite heavy, is not afraid to bear her weight strongly upon the head-straps. She generally uses it, however, in the sitting posture, with weights attached, in order that she may be able to employ her hands. I do not need to say anything as to her present condition. Her firm, elastic step, rosy cheek, and bright eye, testify plainly enough what her general health is. Her treatment, I may add, has been purely mechanical, no internal remedies having been used.

Case III.—This lad, the last case which I shall detain you to see, is fourteen years old. I first saw him in November last. He was then lying about the house, good for nothing, pale and anæmic, and—having been obliged to give up going to school, in which he was much interested—very despondent. He complained of headache, pain in the hips (running down one limb to the knee), morning rigidity, and exhaustion on walking a very short

distance, so that he could not go a square without stopping to sit down to rest. In this case, also, not a trace of posterior deviation existed; but upon causing him to stoop forward, a slight yielding towards the left appeared in the upper part of the lumbar region. Profiting by my experience in the last case, which was just then beginning to feel the benefit of the brace, I determined to give him support at once,—not emulating the caution of the practitioner of whom I recently heard, who, when consulted in a case of suspected spinal disease, gravely informed the anxious mother that it might be necessary to wait two years before it could be determined whether such were the case or not. A spinal swing was put up for him the next day, and so rapid was his improvement that in a week he was able to walk to my office, a full half mile to have his splint applied. In three months he was at school again, and has recently obtained my permission to play base-ball. He also, as you see, has no fear of hanging, if allowed to be his own executioner. This case is one of the deepest interest, from the gratifying fact that not a particle of deformity has made its appearance. I hold that the success of the treatment fully substantiates the correctness of the diagnosis, and that this boy is another living witness to the truth of the principle for which I have long contended—that inflammation of the spinal column is perfectly recognizable before it has reached the stage of caries and deformity, which evils may therefore, under favoring circumstances, be entirely averted. That it requires no education as a specialist to make the diagnosis in such cases, is sufficiently proven by the fact that the physician in whose practice these two very interesting cases occurred had, in both instances, become reasonably well convinced of the true nature of the disease before soliciting my assistance.

This mode of treatment is equally applicable to lateral curvature. In the incipiency of that affection, indeed, it may unaided be adequate to work a cure. By causing the patient habitually to take hold of the higher handle with the hand corresponding to the depressed shoulder, that shoulder is thus, for the time being, elevated, and its muscles thrown into more powerful action than those of the opposite side, while the curve of the spinal column, if not too rigid, is entirely reversed, and, under any circumstances, diminished.

The advantages of the mechanical treatment in such affections, judiciously combining the use of instruments and machines, over that which consists in confinement to the horizontal posture and the establishment of exhausting purulent discharges, are incalculable. While it is, to say the very least, *as* successful in preventing and controlling deformity, it affords to constitutions which so pressingly demand them, those sovereign tonics, *exercise* and the *open air.—Med. Times.*

Editor's Book Table.

[NOTE.—All works reviewed in the columns of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN & COOKE, whose catalogue of Medical Books will be sent to any address upon request.]

A Handbook of Medical Microscopy. By Joseph G. Richardson, M.D., Microscopist to the Pennsylvania Hospital, etc., etc. Philadelphia: J. B. Lippincott & Co.

This little treatise supplies a vacuum in American medical literature, long felt by those members of the profession who have devoted any attention to the subject of microscopic investigation.

The literature of the microscope has been hitherto almost exclusively European, but imperfectly adapted to the medical microscopist, by reason of the extent of the field attempted to be embraced, and still more imperfectly to American students, while the costliness of most of the works has placed them outside of the reach of many earnest workers, who are compelled to study, amongst others, the "bread and butter sciences."

Without meaning to depreciate the unquestionably great value of the works of Carpenter, Beale, Hogg, Gosse and others, they certainly fail to supply exactly the need of the tyro in medical microscopy, who is compelled in acquiring them, in order to get a little that he does want, to purchase much that he does not want, has no use for, and which will only serve to distract his attention from the field, already sufficiently wide, of his legitimate inquiry.

We have examined the little volume of Dr. Richardson with much care, and find it to be comprehensive as regards its subject matter, concise in style, and explicit in statement. Having traveled the road leading to practical microscopy when it was only a by-path with no landmarks to guide our doubtful and devious way, we are in a position to appreciate fully the value of the instructions laid down by the author, and the great advantage to be derived from their careful study by those desirous of following in the same path.

The author seems to understand that the physician needs to become in the shortest possible time familiar with the practical application of the microscope to medical diagnosis, and hence, does not compel him to wade through voluminous treatises upon history, optics, mathematics, geology, or palæontology. He don't once in the whole book say "diatom," that hobby of the dilletanti and bore of utilitarians.

While we must confess a sneaking sympathy with his weakness for high powers, we fear that the majority are against us.

The author is a staunch advocate, indeed the ablest in this country, of Cohnheim's theory of the amæboid movements of white blood cells (leucocytes) and of their essential relation to the inflammatory process, and was the first to direct attention to the "Identity of the white corpuscles of the blood with the salivary mucus and pus corpuscles." The demonstration of this identity should entitle him to the gratitude of every doubter who, like the writer, may have for years been puzzled to detect any difference between them by which they could be distinguished from each other.

But enough has been said of the character and scope of a work which we believe will do more to facilitate the studies of medical microscopists than any within our knowledge, and, as such, we give it our most hearty commendation. W. H.

The Pathology and Treatment of Venereal Diseases: including the Results of Recent Investigations upon the Subject. By FREEMAN J. BUMSTEAD, M.D., Professor of Venereal Diseases at the College of Physicians and Surgeons, New York, etc., etc. Third Edition, Revised and Enlarged. With Illustrations. Pp. 704. Philadelphia: Henry C. Lea, 1870.

When the first edition of this work appeared, we wrote of it in terms of high commendation. The present edition shows very careful and industrious revision, many parts having been entirely re-written, portions, formerly controversial but now settled, having been omitted, the text in some instances condensed, and the bulk of the entire work increased sixty-four pages. The modifications prominently to be noticed refer to the treatment of stricture, and

the operations of ruptures and internal urethrotomy, chancroid and syphilis, visceral syphilis, and syphilitic affections of the eyes. The latter topic has been delegated especially to Dr. E. G. Loring, whom Dr. Bumstead vouches for as unexcelled and rarely equalled in his specialty. We do not hesitate to rank this book as the best on the subject. It is in our opinion the most correct in doctrine as it is certainly the most practical in its teachings. It is "up to the times"—devoid of obscurity, direct in its methods, and reliable in its therapeutics. Physicians who see but little of venereal disease, should have this work for their enlightenment, and those who see much of it will infallibly find suggestions for daily assistance.

Practical Anatomy: a Manual of Dissections. By CHRISTOPHER HEATH, F. R. C. S., Lecturer on Anatomy at the Westminster Hospital, etc., etc. First American from the Second English Edition. Edited, with Additions, by William W. Keen, M.D., Lecturer on Pathological Anatomy in the Jefferson Medical College, etc., etc. Pp. 572. Philadelphia: Henry C. Lea, 1870.

The teacher of Practical Anatomy will find this volume of very great assistance, as it comes nearer to what is wanted when the subject is on the table, than any one of the numerous manuals for the dissecting room it has been our fortune to meet. All of them have savored too much of mere descriptive anatomy. This is really a help to him who is beginning to practice upon the cadaver. It is well illustrated by numerous woodcuts and diagrams, and the text excellently well sets forth exactly what the student is to do and look for at each step of his investigations. The American editor has modified the arrangement of the text so as to have it accord more with the methods adopted in this country. He has also incorporated the results of recent important researches—particularly those of Duchenne, Cleland and Luschka; and almost entirely re-written the directions for dissection of the eye.

The name of the American editor has not previously, to our personal knowledge, been attached to any volume as author or editor, but is familiar to us and many of our readers, as a contri-

butor of many interesting and valuable articles to our valued quarterly contemporary, the *Am. Jour. of Med. Sciences.* In his present task he has developed the possession of abilities, both as an author and editor, which we hope hereafter to see employed still further for the benefit of the profession.

A Treatise on Physiology and Hygiene, for Educational Institutions and General Readers. Fully Illustrated. By Joseph C. Hutchison, M.D., President of the N. Y. Path. Soc., Vice-Pres. of the N. Y. Acad. of Med., Surgeon to the Brooklyn City Hospital, late Pres. of the Med. Soc. of the State of N. Y., etc., etc. New York: Clark & Maynard, Publishers, 5 Barclay Street, 1870. From the Publishers, by S. C. Griggs & Co. $1.60. Pp. 270.

The eminent position of the author of this treatise entitles it to notice, although avowedly compiled for popular use. For this purpose we can freely commend it to teachers as being reliable, and as complete as, perhaps, is necessary to the non-professional student. It is perspicuously written—divided into paragraphs with full-faced captions, and at the foot of each page a series of questions to facilitate the work of the teacher. It occurs to us that more illustrations should have been introduced to assist comprehension of the text.

Pamphlets.

Portraits of Diseases of the Skin.

Messrs. Lindsay & Blakiston send us Part I of A Descriptive Catalogue of the New Sydenham Society's Atlas of Portraits of Diseases of the Skin. Compiled at the request of the Council, by Jonathan Hutchinson, F. R. C. S., etc., etc. They announce that they are now prepared to receive subscriptions for the publications of the New Sydenham Society for the year 1870, at ten dollars, payable in currency, and invariably in advance, and to furnish any of the previous years at the same rate and on the same

terms. The practical character and permanent value of these publications, and the very low price at which they are furnished, commend them to the favorable attention of the medical profession in the United States.

Forty-four volumes were published during the eleven years up to, and including, 1869.

The works to be published in 1870 are Trousseau's Clinical Medicine, vol. iii; Stricker's Manual of Histology, vol. i; Niemeyer on Phthisis; Wunderlich's Treatise on the Use of the Thermometer in Disease; and A Tenth Fasciculus of the Atlas of Skin Diseases.

Subscribers at a distance can have their volumes mailed to them, postage paid, as they appear, by remitting $1.50 in addition to the subscription price for the year.

Non-subscribers can obtain the books published during any one year by subscribing and paying for that year $10, but no volumes or books can be had otherwise or separately except the following: The Year Books for 1859, '60, '61, and 62, for $10.50; Portraits of Skin Diseases, Fasciculi 1 to 9, for $42. A Descriptive Catalogue of the Society's Atlas of Portraits of Diseases of the Skin, and their last Report, will be furnished gratis upon application.

From the same Publishers, by Cobb Brothers, 81 and 83 Lake Street, we receive the

Physician's Visiting List for 1870.

This visiting list is the simplest, and by many physicians preferred to any other form published. It is too well known, having now been before the profession for twenty years, to require description. The extended circulation it has achieved enables the publishers the present year to make a material reduction in its price. For convenience of our readers we give the sizes and prices at which copies can be obtained by addressing the publishers, or any of the principal booksellers. Mailed post-paid on receipt of price.

For 25 Patients weekly, tucks, pockets and pencil, $1; for 50 Patients weekly, tucks, pockets and pencil, $1.25; for 75 Patients weekly, tucks, pockets and pencil, $1.50; for 100 Patients weekly, tucks, pockets and pencil, $2; for 50 Patients weekly, 2 vols. Jan. to June, July to Dec., tucks, pock-

ets and pencil, $2.50; for 100 Patients weekly, 2 vols. Jan. to June, July to Dec., tucks, pockets and pencil, $3; for 25 Patients weekly, interleaved, tucks, pockets and pencil, $1.50; for 50 Patients weekly, interleaved, tucks, pockets and pencil, $1.75; for 50 Patients weekly, interleaved, 2 vols. Jan. to June, July to Dec., tucks, pockets and pencil, $3.

Photographic Review of Medicine and Surgery. A Bi-Monthly Illustration of Interesting Cases, accompanied by Notes; edited by F. F. MAURY, M.D., and L. A. DUHRING, M.D. No. 1, Vol. 1, October, 1870. Contents: Multilocular Hydatid Tumor, S. D. Gross, M.D.; Meningocele, D. Hayes Agnew, M.D.; Horny Tumors, Wm. H. Pancoast, M.D.; Keloid Tumor, F. F. Maury, M.D. Published by J. B. Lippincott & Co., 715 and 717 Market Street, Philadelphia. $6 per annum, in advance.

From the Prospectus we extract:

The Photographic Review will appear in numbers, every other month, each containing four Photographic Plates, with appropriate notes and remarks. At the end of the year the six numbers may be bound together, forming a handsome volume.

We take pleasure in announcing that Drs. S. D. Gross, Joseph Pancoast, D. Hayes Agnew, R. J. Levis, A. Hewson, Wm. Hunt, J. H. Brinton, John H. Packard, Wm. Pepper, J. M. Da Costa, T. G. Morton, Wm. H. Pancoast, S. Weir Mitchell, S. W. Gross, Harrison Allen, J. Ashhurst, Jr., and other eminent members of the profession, are among the regular contributors.

The initial No. which is before us fully sustains the promise of the publishers. The enormous expense necessarily incurred in the production of the very elegant and striking photographs which accompany the descriptive text, must demand a large subscription list for its support. We sincerely trust the undertaking may meet with the success it eminently deserves. It is creditable in every way to the enterprising originators, and to the profession. The photographs alone are worth a dollar each.

Constitution and By-Laws of the Medical Library and Journal Association of New York, with List of Officers and Members. 1870.

Editorial.

Publishers' Notice.

Readers of the JOURNAL will not fail to recollect that this is tne last No. of the volume, and that continuance of their subscriptions necessitates payment in advance. Prompt remittance will enable us to determine the size of the edition to be published, and, if as general as we have every reason to expect, will permit liberal improvements in every department included. A glance at the general index of the volume, now complete, will show tl.e range and variety of topics noticed and discussed, and that few or none of the matters about which the profession have been thinking and writing are neglected. In the ensuing volume, space will be gained for greater attention to many practical subjects by condensation of our foreign department. The elaborate papers on physi ological subjects, which have constituted an important feature of the present volume, whilst they have elicited the warmest interest of a goodly number of our readers, yet have detracted somewhat from the immediately practical character which we are desirous hereafter of impressing upon the JOURNAL. We must remit these elaborate investigations and discussions to the monographs, the quarterlies, and cyclopædias. The gist of the matters observed, discussed and discovered, will be given, and all reasonable latitude permitted to correspondents in their efforts to arrive at and develop medical truth. But the Editors have determined upon what they conclude best for the interests of both the JOURNAL and subscribers, to make it more than ever a thorough abstract and chronicle of the time—a necessity for each and every practicing physician who desires to keep pace with the steady, onward march of the profession.

On the part of the Publishers no care or expense will be spared to make its mechanical appearance creditable to themselves, and its prompt issue satisfactory to subscribers.

The Editors

Pledge to their readers, for the coming year, increased contributions of time and industry to the highest development of the important organ of the profession committed to their charge. An

enlarged corps of contributors has been secured, and every effort will be put forth to make the JOURNAL a welcome visitant to the tables of physicians, and a valuable assistant to them in solving the professional problems of their chosen work.

Palato-Pharyngeal Tumor.

In the November No. of the JOURNAL (p. 653), Dr. Chesbrough reports from the Surgical Clinic of Prof. Gunn, the removal of an extraordinary tumor from its attachment to the *velum pendulum palati*. So far as the standard books are concerned, the case is unique, and certainly the difficulties attending its removal can scarcely be exaggerated in description. The fortunate result may well be considered a surgical triumph.

In the *Southern Medical and Surgical Journal*, May, 1853, we find the report, by Dr. L. A. Dugas, of a case of fibrous tumor in the same locality, which he successfully extirpated.

Of this tumor, Dr. Dugas says: "The soft palate was carried forwards and downwards, so as to constitute a prominence the size of a large egg, to the posterior surface of which [the palate] the tumor was attached. Deglutition was so difficult that he could take no solid food, his articulation was very indistinct, and respiration considerably impeded when he would walk briskly, causing him to breathe loudly, and like a horse affected with the 'bellows.'"

The operation instituted by Dr. Dugas, however, was much more formidable than that described by Dr. Chesbrough as succeeding in Dr. Gunn's case. He says:

"Provided with actual cauteries, a syringe, sulphate of zinc, etc., to control the hemorrhage from the general surface and smaller vessels, I passed a ligature beneath the right carotid artery, and left it there, ready to be tied, should this become necessary. The patient was then seated in a chair, and an incision made from the right angle of the mouth to the masseter muscle, which necessitated the ligature of the facial artery. In the third stage of the operation, a longitudinal incision was made from the side of the uvula to the roof of the mouth, through the soft palate."

In this manner the tumor was removed from its attachments, the strong connective tissue being torn by the fingers. In Dr. Dugas' case there was also found a small supplementary tumor, apparently

in connection with, and pressing down, the right tonsil, which had not been discovered until after the removal of the larger tumor. This was also removed in a similar manner, although not without considerable difficulty. The patient fully recovered. Subsequent microscopic examination showed the tumors to be purely fibrous. We regard it as better to adopt the plan of Prof. Gunn, and have this examination made prior to the operation.

Free Advertisement.

CHICAGO, September 30, 1870.

J. L. SMITH, Esq.—DEAR SIR: From a careful examination of the "Home Bitters," and the formula from which they are manufactured, we have no hesitation in saying they are a most excellent tonic, and we are satisfied they are equal, if not superior, to any bitters yet offered to the public. Yours respectfully,

R. LUDLAM, M.D., 297 Wabash Ave.,
Prof. of Obstetrics and Diseases of Women and Children, and Dean of Faculty, Hahnemann Medical College.

TEMPLE S. HOYNE, A.M., M.D., 711 Wabash Ave.,
Prof. of Materia Medica and Therapeutics, Hahnemann Medical College.

And our friend Mariner, "Analytical Chemist," etc., certifies that the "bitters" are in general use by the medical profession—in this preparation presented in pure alcoholic solution. As the reporters say, "comment is unnecessary."

Freedom of Opinion.

It is perhaps unnecessary for us again to announce that we do not hold ourselves responsible for the opinions of our correspondents. Truth is not a mere matter of opinion, and there is a world of sense in the old observation that men rarely come at a reasonable opinion on any subject until they have first exhausted all the absurd views it is possible to take of it. All we ask is, that our correspondents shall have intelligent notions, and advance them in good faith.

DOCTOR LYMAN STANTON, of Copenhagen, N. Y., tells the following good story—true, and to the point: "A gentleman who had just lost a member of his family under the treatment of poisons, said to his physician, 'This is the last doctor's bill that I shall ever pay; I shall never employ a doctor again so long as I live and have my senses.' The doctor replied, 'Drowning men catch at straws, and you may yet be glad to see the doctor.' The gentleman replied, '*No, never!* I shall trust in *God Almighty* and *catnip tea.*'"—*Eclectic Review.*

Medical Items, News, and Gossip.

E. M., a clerk in a public office, came for advice, complaining of excessive flow of urine, with great thirst, voracious appetite, and gradual emaciation. Sp. grav. of urine ranging from 1.030 to 1.040. Various medication, meat diet, etc., were adopted, with never more than temporary relief. On careful inquiry as to the surroundings, it was ascertained that, in the intervals of duty (delivering of letters at the post office window), he was in the habit of stepping back from the opening, and leaning against the tubes of the steam heating apparatus, whereby the back was strongly heated. This habit had been kept up for several months, the weather having been unusually cold. Discontinuance of the practice was enjoined, and perfect recovery ensued, without any further medication or change of diet. The writer, who attended the case, thinks that if he had taken the patient out of the office, and had exhibited some particular medicine, the latter would have had the credit of the cure. There has been no return of the disease, although about seven years have elapsed.——Several of our friends complain of the uncertain action of that usually mild laxative, the citrate of magnesia. It is often inefficient, and often excessively irritant. It varies in its chemical composition, as ordinarily put up in solution, and is both inconvenient and expensive for country use. Ten or twelve years since, our attention was called to this matter by some writer, we think in the *Am. Jour. of Pharmacy*, and we were led to substitute for the citrate of magnesia, the tartrate of soda, which is fully as efficient as the former, even when properly prepared; not liable to decomposition, cheaper, and readily presented in an equally agreeable and palatable solution. It may be extemporaneously given in water, with lemon syrup, or, if desired, a little citric acid may be added. This salt is preferable to the double tartrate of soda and potash in most cases when the latter is employed.——When creasote is indicated in dyspeptic cases, an old and useful addition is Sp. Ammon. Aromat., 15 or 20 drops of the latter to one or two of the former, in an ounce of water. It is better without the syrup usually added.——Trousseau commended as a substitute for cod liver oil, for daily use, four ounces of fresh butter, with three-fourths of a grain

of iodide of potassium, three grains of the bromide of potassium, and half a drachm of salt, to be eaten on bread. The medicines, in that butter, would scarcely hurt much, at least in these days, when drachm doses of the bromide are considered "quite the thing." ——The Prussian government has already ordered 200,000 wooden legs.——At Painesville, Ohio, a man lying sick with typhoid fever, was instantly killed by the shock of the recent great explosion of nitro-glycerin, although two miles distant from the point where it occurred. A physician twelve miles distant was stunned by the concussion, his horse brought to a standstill, and his watch stopped in his pocket. The *Scientific American* calls for stringent legislation to prohibit the general use of this fearfully potent and destructive agent.——Houzeau has contrived an apparatus, by aid of which he is able to prepare ozone in any quantity from the air or oxygen. He has not yet given a description of his invention, although publishing the general result of his observation. Considering the intense activity of this great atmospheric purifier, such an invention is attended with much general and practical interest.——At the Children's Hospital of Lausanne, M. Joel treats extensive burns by placing the patient, for fifteen or twenty minutes at a time, in a bath containing a couple of handsfull of sulphate of iron. This is repeated twice a day, and is said to moderate the suppuration, remove the fetid odor, and promote rapid recovery.——The papers say, that the drugging of drinks, whereby the operations of the *chevaliers d'industrie* of our cities are facilitated, is accomplished simply by putting tobacco snuff in the beverage. We are inclined to think that the principal agent in most of these cases is alcohol. ——The *Pacific Journal* advises, for fetid expectoration: ℞ Acid. Carbol., gr. xl; Aq., ℥viij; M.; give a tablespoonful every two or three hours. Or, ℞ Creasoti, gtt. xx; Acid. Sulph. Aromat., ʒ j; Aq., ℥ viij; M.; give in the same way. Or, ℞ Potassæ Permang., gr. viij; Aq., ℥ viij; M.; same directions. The last prescription is reputed to be much the best.——The *Oregon Reporter* states, that turpentine is an antidote for phosphorus. "Let all remember this when a child accidentally helps itself to matches."——Chloride of potassium is recommended by Dr. Sanders as a substitute for the bromide.——Epistaxis is said to be controlled by pressure of a branch of the facial artery, near

the ala of the nostril whence the blood is flowing. A slight intermittent movement of the soft parts may be seen or felt by careful observation. So writes a correspondent of the *Gazette des Hopitaux.*——A case of simultaneous intra and extra uterine pregnancy was reported to the Washtenaw (Mich.) Co. Med. Soc. by Prof. Sager. The pathological specimen was forwarded to him by Dr. H. B. Landon, of Bay City. There was a fœtus in the uterine cavity, and its twin in the left Fallopian tube.——A correspondent gives the following as the original VELPEAU'S MIXTURE: ℞ Tinct. Opii, Tinct. Camph. Co., Tinct. Rhei, āā ʒ j; Ess. Menth. Pip., ʒ x; Tinct. Capsici, ʒ vj; M. Dr. Squibb's notorious compound (prescribed in New York city as Tinct. Opii Comp.) is an imitation of this, and from the similarity of the name given it to that by which paregoric is often known, is certainly sufficiently dangerous.——The New York State Inebriate Asylum, at Binghampton, is now under the charge of Dr. Daniel E. Dodge, who may be addressed for information.——The process of skin grafting over extensively denuded and granulating surfaces, suggested as a new method in the Parisian, is essentially a revival of an old practice.——A paper on the Effects of Increased Atmospheric Pressure, by Dr. E. A. Clark, of St. Louis, was accidentally mislaid, but will receive further notice in an ensuing No.

New Polyscope.

M. Trouve's new polyscope serves for a laryngoscope, ophthalmoscope, otoscope, and urethroscope, and represents, when closed, a case seven inches long by one inch and a quarter in diameter. The two parts composing it carry each a lens at their opposite extremities—the one two and a half inches, and the other three and a half. In the lids which close the case, two mirrors are placed, the one plane, the other concave, both being pierced in the centre. The case contains—1. Two larynx mirrors with handle. 2. Three ear speculums. 3. A photophor, or candlestick, with three branches, terminating on the side of the light by a vent, which at the same time does for a reflector; the photophor can ascend to the height of fifteen and three-quarter inches.

Loot.

Value of Public Urinals.

The sanitary committee of the Rochdale corporation have recently erected a public urinal, so constructed as to collect the product, which is extensively used for scouring cotton cloth. The cost was £161, and £8 8s. has been received as rental for the year. This, however, is greatly below the value, the ascertained product being upwards of 20,000 gallons a year. The committee anticipate, in future, a good income from these constructions.—*Lancet.*

Born on the 4th day of July, A. D. 1870, 5 minutes before 12 o'clock, M., in the village of Colon, St. Joseph Co., Mich., a female child, with the left fore-arm amputated, the stump healed by cicatrix; daughter of Margaret Bradley, wife of Nelson N. Bradley. Nathan Mitchell, M.D., Accoucheur.

Vaccination in the Italian Army.

Dr. Baroffio, in his report on vaccination in the Italian army in 1868, reports that the number vaccinated was about 57,000. The good effects of vaccination and revaccination are constantly becoming more apparent. The mortality from small pox in the Sardinian army, which formerly was nearly 7 per cent., in 1863 had fallen to 4 per cent., and in 1868 was little more than 3½. Dr. Baroffio expresses a favorable opinion of the plan of taking the lymph from healthy and strong infants, and then transmitting it from arm to arm among the soldiers.—*Brit. Med. Jour.*

Application for Cancer.

An Italian medical journal recommends the following application for cancer of the breast: Concentrated acetic acid, 15 parts; creasote, 3¾ parts; water 450 parts. A case is mentioned, in which a cancer was removed and cicatrization completed in six weeks. The application was made on lint, four or five times daily. —*Dental Times.*

Dr. S. H. Bennett recommends the following in the nausea and vomiting of phthisis:

℞ Naphthæ Medicinalis, - - - - - f. ʒ i;
Tinct. Cardamoni Comp., - - - - - f. ʒ ;
Mist. Camphoræ, - - - - - f. ʒ vii.
M. Ft. Mist.
Sig.—A tablespoonful every four hours.

Small Pox in Paris.

The number of deaths in Paris from small pox is daily increasing. From the 17th to the 23rd April there were 132 deaths, and 166 from the 24th to the 30th. These results are surprising, in view of the great number of revaccinations which have taken place within four or five months past. The documents presented to the Academy by M. Vernois would lead one to impute the numerous cases of unsuccessful revaccination to vaccine taken from the animal, and to find, in this fact, the principal reason for the growing increase of the actual epidemic. It is, therefore, more urgent than ever to return to the vaccine of Jenner.—*Lyons Medical.*

Temperature in Scarlatina.

Dr. E. L. Fox, in some admirable clinical observations on the temperature of disease, says: "We must give a guarded prognosis in cases of scarlatina with very high temperature, but unfavorable cases are not always marked by extreme elevation of the mercury. Death will be ushered in by a high temperature, if it occurs during the eruptive period of the disease, but even then the thermometer may fall just before the fatal event." He thinks that a high temperature will be found to precede death from complications, such as scarlatinal rheumatism, pneumonia, arachnitis, and nephritis, while a fatal termination dependent on septiæmia may be accompanied generally, but not always, by a lower temperature. The pulse bears little definite relation to the temperature in scarlatina. A rise of temperature often occurs during desquamation, but this is not always the case. Acute tubal nephritis, of which albuminuria and hæmaturia are the evidences, will cause a rise of temperature, even to the maximum point of the original disease.—*Medical Times and Gazette.*

Chinese Medication.

Ling Wau, a Celestial charlatan, has taken up his abode in New York, and advertises not only an imported materia medica of three hundred "remarkable Chinese medicines," but imported apothecaries to dispense them. In this connection it may be of interest to remark, that San Francisco custom-house authorities recently seized an invoice of "remarkable Chinese remedies," consisting of pickled monkeys, dried toads, and such like medicinal articles. An elegant Mongolian prescription might read:

℞ Pulv. unguis pollicis pedis, - - - - - - grs. v;
Bufonis exsiccati rasi, - - - - - - - ʒ j;
Caudæ soricis ustæ, q. s. ad gratum saporem.

Tritura bene, et in chartulis v. divide, quarum capiat æger unam bis in die.

—*Medical Gazette.*

The Slain in War.

What to do with the slain in the war, has occupied the attention of the *Gazette Hebdomadaire*, and we are glad to see that some of the writers are prepared to advocate burning as superior to burying. The ancient plan had many advantages from a sanitary point of view, and we should welcome any discussion which might tend to remove the objections of modern Europe to any mode of disposal of the dead that might be better for the living than that now practiced.—*Med. Press and Circular.*

Hair Dye.

Mr. McDonald communicates to the *Am. Jour. of Pharmacy*, this, as a "Brown Hair Dye:"

"To those whose consciences will permit them to recommend such preparations to their customers, I submit the following formula—

℞	Acetate of Lead, - - - - -	℥ ij;
	Hyposulphite of Soda, - - - -	℥ j;
	Rose (or other perfumed) Water, - - -	f℥ xiv;
	Glycerin, - - - - - -	f℥ ij;

Dissolve the acetate of lead and hyposulphite of soda in separate portions of the perfumed water, filter separately, mix the solutions, and add the glycerin.

"In a short time after it is made, the solution will become slightly turbid. This may arise, either from a small quantity of air which is contained in the liquid, or, perhaps, from the presence of a small amount of oxalic acid with which glycerin is said to be sometimes contaminated. It, however, soon becomes clear by deposition of a minute quantity of dark powder (sulphuret of lead), and remains so, so long as the bottle is kept tightly corked. I think it is quite as harmless as the ordinary lead and sulphur dyes, but this is, at the best, only a left-handed recommendation."

Tincture of Erigeron in Alveolar Hæmorrhage.

Mr. Perkins states, (*Dental Cosmos*, Aug. 1870,) that the tincture of erigeron is more efficacious than Monsel's salt for arresting the troublesome hæmorrhage sometimes following extraction of teeth.

Small Pox in Russia.

In Russia, vaccination is not compulsory. According to official returns, 10,350,000 persons have died of small pox in that country during the last seventy years. What say our friends of the Anti-vaccination League to this?—*Lancet.*

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☞ N. B. By an unaccountable mistake, the numbers for April and May were paged alike. For convenience of reference, the duplicate paging for May in the Index will have affixed the italic *a*.

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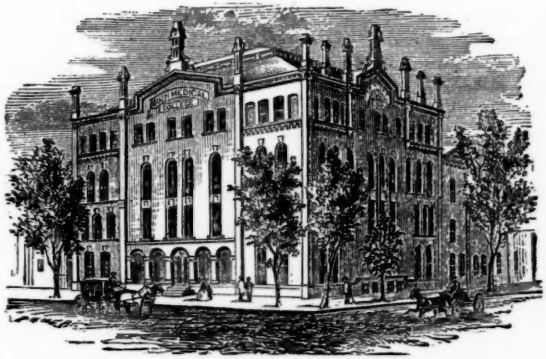
TWENTY-EIGHTH

ANNUAL ANNOUNCEMENT

OF

RUSH MEDICAL COLLEGE,



COR. INDIANA AND DEARBORN STREETS,

CHICAGO, ILL.,

FOR THE SESSION OF 1870-71,

WITH A

CATALOGUE OF THE STUDENTS AND GRADUATES OF THE PREVIOUS SESSION.

CHICAGO:
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OFFICE 14 CLARK STREET.

1870.

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F. L. WADSWORTH, M.D.,
Assistant to Professor of Physiology.

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Rush Medical College,

CHICAGO.

ANNUAL ANNOUNCEMENT AND CIRCULAR,

FOR 1870-71.

THE Introductory Lecture to the Twenty-eighth Annual Course will be given in the Lower Lecture Room of the College, on Wednesday evening, September 28th. The Regular Lectures will commence on the following morning, and continue eighteen weeks. As there will be but one Introductory, students are admonished that their interests demand their attendance at the opening lecture.

College Building.

The College Building, situated on the corner of Dearborn and Indiana Streets, contains two large lecture rooms, each having 625 numbered seats, a spacious Laboratory, Museum, and Dissecting-room—the latter, 38 by 80 feet in size, thoroughly ventilated, lighted by side and skylights, and abundantly supplied with gas and water, containing 50 tables, and private closets for the wardrobes, books, and instruments of each class, is unquestionably unequaled for its purpose. The whole building is warmed by steam, by which a uniform and agreeable temperature is secured in all its parts. Several of the Faculty have their offices in the building, affording every requisite facility for students to secure such information as they may from time

to time desire. Experience fully attests the perfect success of the appliances for both heating and ventilation. Not a single case of severe sickness has occurred in the large classes assembled. It is clear that, aside from size, very important hygienic improvements have been secured in the new structure, making this the finest and most commodious Medical College building in the country.

Members of the profession are invited to call and survey the building and its advantages at any time.

School of Chemistry.

The spacious Laboratory of the College has been fitted up in the most complete manner for instruction in *Practical* Chemistry. Students are received at any time, and, if desired, can have the privilege of working at the tables, under the immediate direction of the Professor of Chemistry. Special instruction is given in the several departments of Chemistry, as follows:—Rudimentary Chemistry, Qualitative Analysis, Quantitative Analysis, Practical Toxicology, Chemistry of the Urine, and Physiological Chemistry. Instruction in Practical Metallurgy and Assaying, and Chemistry of Arts and Manufactures, will be given to those who desire it.

Materia Medica.

Materia Medica is illustrated by a well selected cabinet of medicinal substances, and with colored plates of medicinal plants. Great care will be taken to instruct the class as to the physiological action of remedial agents, while in their therapeutic application, a careful conservatism will be sedulously inculcated.

Physiology.

PROF. FREER is again spending the Summer in Europe, engaged in scientific investigations, and will return to give his course, which, by vivisections, and otherwise, will demonstrate his branch in such a manner as to include all its most recent discoveries. A peculiarity of this course, in this College, is, that the teaching, in every part, is not only didactic but experi-

mental and demonstrative, to an extent unequalled, and hitherto unattempted, in this country.

Ophthalmology.

In addition to the didactic course at the College, clinical instruction will be given twice a week at the Chicago Charitable Eye and Ear Infirmary.

Physicians and advanced students, desiring to make ophthalmology and otology subjects of special clinical study, will find most ample opportunities of witnessing important surgical operations on the eye, and of examining and comparing large numbers of cases.

During the year ending July 1, 1870, one thousand and nine patients were under treatment; during the past winter there was an average daily attendance of fifty patients at this Infirmary.

Legal Medicine and Insanity.

To give increased facilities for instruction on Legal Medicine and Insanity, the Trustees have made provision for a complete course on these subjects. The lectures will be given by D. A. MORSE, M.D. From Dr. MORSE'S attainments and his previous success in teaching these branches, no doubt is felt that this addition to the corps of teachers will render the curriculum of the College instruction more complete and valuable.

Anatomical

Materiel is abundant, and furnished at reasonable rates.

Surgical and Medical Clinics.

The Course of Instruction adopted by this Institution contemplates, especially, excellence of elementary teaching. To be thorough and progressive are the objects attained by our Didactic and Clinical discipline.

A semi-weekly clinic will be given at the Marine Hospital. Prof. GUNN and Dr. E. C. ROGERS, Surgeon in Charge, will lecture upon Clinical Surgery, and Dr. WILLIAM C. LYMAN,

(late Surgeon U.S.N., now Resident Physician of the Hospital,) upon Diseases of the Chest.

Clinics will be given each week at the County Hospital, by PROFS. POWELL and ROSS; the time being so arranged as not to interfere with the regular lectures in the College.

The *College Dispensary* is constantly increasing in efficiency. Several thousand patients visit it annually for treatment, presenting a most interesting and varied class of cases for study.

Saturday afternoon of each week throughout the year is devoted to Surgical Operations and Clinical Instruction in the College; at which time, all persons, either from the city or country, are attended gratuitously. The advantages to be derived from these Clinics can not be overestimated; affording an opportunity of witnessing a great variety of surgical operations, and numerous medical cases, and the treatment proper for each.

Graduation.

The following are the requirements for the Degree of Doctor of Medicine, *viz.:*—

1st. The candidate must be 21 years of age, and give satisfactory evidence of possessing a good moral character.

2nd. He must have pursued the study of medicine three years, and attended at least two courses of Lectures, one of which must have been in this Institution.

3d. He must have attended Clinical Instruction during, at least, one College term.

4th. He must have pursued the study of Practical Anatomy, under the direction of the Demonstrator, and to the extent required by the rules of the College.

5th. He must notify the Secretary of the Faculty of his intention to become a candidate, and deposit the amount of the Graduation Fee with the Treasurer, on or before the 20th day of January. In case the candidate fails to graduate, the fee will be returned to him.

6th. Every candidate must undergo a full and satisfactory examination on all branches taught in the College.

7th. Graduates of other respectable schools of medicine will be entitled to an *ad eundem* degree, by passing a satisfactory examination, paying the graduation fee, and giving evidence of a good moral and professional character.

Board and Rooms.

Good board, with rooms and all the usual accommodations, can be obtained at as reasonable rates in this as in any other city. By associating in clubs, students may supply themselves with good accommodations at a material reduction from ordinary rates.

Spring and Summer Instruction.

Under the direction of the Faculty, a Spring and Summer Course, beginning on the first Wednesday of March, and ending on the 30th of June, is annually conducted, consisting of lectures, recitations, and clinical observations at the Hospitals and College Dispensary. It is not intended to be in lieu of a regular course, but is established to afford greater facilities to students desiring to remain in the city during the summer, for the benefit of clinical advantages.

This course is free to Matriculants of the College.

There are also abundant facilities, connected with the College, for the pursuit of special studies, by PRIVATE COURSES, under competent instructors, and for Private Examinations on the subjects treated in the public lectures, of which the student may avail himself, as his inclination and advantage may dictate.

Directions to Students.

Students will sign the Matriculation List, and obtain their tickets of the Treasurer, PROF. INGALS, at his office, 190 Clark Street; and to give opportunity for this, the office will be open from 8 o'clock A.M. to 5 o'clock P.M., on and after Monday, September 26th. Students may select their seats in the lecture rooms when they take their tickets. The Janitor may be seen at his residence in the College building, and will aid in obtaining boarding places, rooms, etc. For any special information,

students may call on any member of the Faculty. For circular, address the Secretary, Prof. DeLaskie Miller, 518 Wabash Avenue.

Books of Reference.

Students will find a good assortment of medical books and surgical instruments in this city. The following books of reference, among others, are recommended:—

Chemistry.—Fownes, Brande and Taylor, Wells.

Anatomy.—Gray, Wilson.

Physiology.—Todd and Bowman, Flint, Dalton, Draper.

Materia Medica.—Waring, Stillé, Wood, U. S. Dispensatory, H. C. Wood's Abridgement of Pereira.

Medical Jurisprudence.—Taylor, Beck, Wharton, and Stillé.

Obsterics.—Hodge, Cazeau, Bedford, Churchill.

Diseases of Women.—Scanzoni, West, Thomas, Hewitt.

Diseases of Children.—Condie, West, Tanner, Bouchut, Smith, Vogel, Meigs and Pepper.

Surgery and Practical Pathology.—Erichsen, Chelius, Druitt, Gross, Paget.

Practice of Medicine.—Flint, Aitken, Niemeyer, Watson.

Clinical Medicine and Disease of Chest.—Bennett's Clinical Medicine; Flint, or Walsh, on the Heart; Walsh, or Fuller, on the Luugs.

Surgical Anatomy.—Maclise.

Microscopic Anatomy.—Todd and Bowman, Queckett.

Ophthalmology.—Williams, Stellwag, Wells.

Otology.—Roosa's Von Troeltsch.

The Library Room,

To which all members of the Class have free access, is pleasantly lighted and heated, and to its tables all the medical periodicals of this country are regularly contributed. This enables students at leisure intervals to familiarize themselves with the current medical literature of the times, and cultivates in them a habit of general professional reading, and begets a disposition to subscribe for such journals when they become practitioners.

Fees.

Lecture Fees for the Course,	$55 00
Matriculation Fee,	5 00
Dissecting Ticket,	5 00
Hospital Tickets,	5 00
Graduation Fee,	25 00

From Alumni of this and other respectable Medical Colleges, the Matriculation Fee only will be required.

CATALOGUE OF STUDENTS.

Session of 1869-70.

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A. D. Ballou,	Dr. S. Marks,	"
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Edward T. Dann,	Dr. H. D. Grandle,	Wisconsin.
John M. Dod,	Dr. David Prince,	Illinois.
Isaac R. Dunning,	Practitioner,	Michigan.
S. F. Dickenson,		Massachusetts
E. B. DeLaMatyr,		Illinois.
Daniel L. Dakin,	Dr. E. Hann,	Michigan.
Milton H. Everett,	Dr. J. W. Edwards,	Illinois.
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W. C. Eichelberger,	Dr. R. A. Perkins,	Indiana.
Wm. H. Ensminger,	Dr. W. Hill,	Illinois.
Robert H. Ewing,	Dr. H. M. Lyman,	"
Perry M. Evans,	Practitioner,	"
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William Eastman,	Dr. J. B. Gayler,	Wisconsin.

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Wm. L. McLane,	Dr. Jas. H. Dodson,	"
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Robert McPherson,	Dr. M. C. McPherson,	Illinois.
Samuel Miller,	Practitioner,	Minnesota.
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Benjamin P. Miller,	Practitioner,	"
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John F. Pritchard,		Wisconsin.
J. H. Phelps,	Dr. H. K. Stratford,	Illinois.
J. Carey Panter,	Drs. Lewis & Cole,	"
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W. H. Palmer,	Practitioner,	Illinois.
Robert O. Purviance,	Drs. Matthews & Bro.	"
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R. H. Plummer, M.D.,	Practitioner,	California.
F. M. Pickens,	Practitioner,	Indiana.

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I. W. Stout,	Dr. G. N. Ferris,	Ohio.
Wiley Snyder,	Dr. S. D. Day,	Indiana.
Daniel H. Shipman,	Dr. R. H. Harvey,	Tennessee.
Alfred G. Schlosser,	Dr. Hoffman,	Illinois.
J. N. Starr,	Dr. E. C. Gray,	Wisconsin.
Theophilus Sprague,	Dr. J. L. Morgan,	Illinois.
John H. Stewart,	Dr. H. M. Stewart,	"
Wm. H. Stewart,	Dr. R. A. Moon,	Ohio.
Joseph T. Scott,	Dr. H. W. Sigworth,	Iowa.
Z. T. Standley,	Dr. John Ten Brook,	Illinois.
F. B. Shores,		"
G. W. Stewart, M.D.,	Practitioner,	"
Watson A. Smith,	Dr. J. F. Beckner,	Indiana.
Lewis A. Snyder,	Dr. A. H. Schaffer,	"
Jas. B. Stetson,	Dr. Ezra Stetson,	Illinois.
Geo. J. Schott,	Faculty,	"
Henry C. Soule,	Practitioner,	Wisconsin.
John T. Scott,	Dr. J. P. Cross,	Indiana.
Conrad Secrist,	Practitioner,	Illinois.
E. Leroy Turner,	Dr. Wm. Boys,	Iowa.

NAME.	PRECEPTOR.	STATE.
S. L. Tyner,	Practitioner,	Indiana.
Henry J. Thomas,	Dr. Alfred L. Calteman,	Wisconsin.
Herbert K. Tefft,	Dr. Erastus Tefft,	Kansas.
J. Austin Thompson,	Dr. J. H. Thompson,	Iowa.
William Todd,	Practitioner,	California.
John W. Tope,	Dr. John D. Otis,	Ohio.
J. Mead Vallentine,	Dr. Fred Loyd,	Illinois.
Henry Vernon,	Dr. Geo. Heidemann,	"
S. Rand VanBuren,	H. Enos. M.D.,	Michigan.
Frank L. Wadsworth, M.D.,	Practitioner,	"
C. R. Warren,		Indiana.
Grier W. Wheeland,	Dr. G. W. Chase,	Iowa.
John A. White,	Dr. A. G. McGrew,	"
L. P. Woodworth,	Dr. John Bell,	Wisconsin.
Chas. A. Wilcox,	Dr. Chester Hard,	Illinois.
John F. Williams,	Dr. Joseph W. McCall,	Tennessee.
Cyrus N. Walls,	Dr. John Tenbrook,	Illinois.
J. C. Waite,	Practitioner,	Indiana.
John A. Welch,	Drs. Robinson & Denny,	"
John C. Webster,	Dr. John Simison,	Indiana.
Albert Wilgus,	Dr. John Simison,	"
Wm. W Williams,	Dr. J. A. Williams,	Illinois.
A. J. T. Wolcott,	Dr. H. C. Turner,	"
Robert E. Williams,	Dr. A. B. Newton,	Wisconsin.
G. A. Weed,	Practitioner,	California.
Delinzo A. Walden,	Practitioner,	Illinois.
E. C. Wilder,		Minnesota.
Ephraim Young,	Dr. A. D. Witherill,	Iowa.

Spring Course.

O. J. H. Adams,	Harvard University,	Illinois.
Wilbur Allen,		"
E. V. Anderson,	Dr. Northrup,	"
Jas. Henry Abrams,		"
L. C. Beckford,	Practitioner,	Indiana.
Sumner Clark,	Practitioner,	Illinois.
J. S. Dotten,		New York.
Thomas D. Ford,	Dr. S. J. Avery,	Illinois.
D. J. Grandstaff,		Kansas.
E. Fletcher Ingals,	Dr. E. Ingals,	Illinois.
Henry Jones,	Dr. Jas. H. Mosier,	"
Frank C. Miller,	Dr. B. P. Miller,	"
Albert Mygatt,		Minnesota.
Sidney Myers,		"
Z. E. Patrick,		Illinois.
A. N. Richardson,		"
J. Oliver Stanton,	Dr S. N. Fish,	"
Theodore Tillotson,		"
Alexander Wiltse,		"
M. W. Wood,		Wisconsin.

List of Graduates.

1870.

LYMAN J. ADAIR, ... Iowa.
WM. R. AYDELOTT, ... Ind.
GEO. H. AURNER, ... Ill.
THOMAS J. ADAMS, ... Ind.
GEORGE THEODORE ACERS, Iowa.

D. BRYAN BAKER, ... Ill.
CHARLDS A. BARNES, ... Ind.
FRED. T. BICKNELL, ... Wis.
L. LAFAYETTE BOND, ... Wis.
JOHN ELLISON BEST, ... Ill.
GILBERT E. BRIDGMAN, ... Can.
JOHN BLOOMINGSTONE, ... Ill.
CYRIL P. BROWN, ... Mich.
ALBERT D. BALLOU, ... Wis.
WILLIAM J. BURNS, ... Wis.
DAVID O. BENNETT, ... Wis.
THOMAS BLAKESLEE, ... Ill.
WILLIAM M. BOYD, ... Ill.

WILLIAM L. CROWDER, ... Iowa.
WILSON C. CARVER, ... Ill.
PAUL H. CURTNER, ... Ind.
THOMAS COATES, ... Iowa
JAMES McNAB CASSELS, ... Cana.
LAFAYETTE W. CASE, ... Iowa.
HOWARD C. CRIST, ... Ill.

MICHAEL J. DONNELLY, ... Col'o.
SAMUEL W. DURANT, ... Ill.
SAMUEL T. DAVIS, ... Ill.
ISAAC R. DUNNING, ... Mich
EDWARD F. DANN, ... Wis.
DANIEL L. DAKIN, ... Mich.
JOHN W. DOD, ... Ill.
JACOB R. DOSCH, ... Iowa.
HAMILTON P. DUFFIELD, ... Ill.

RICHARD J. EATON, ... Ill.

MILTON H. EVERETT, ... Ill.
WILLIAM C. EICHELBERGER, Ind.
ROBERT S. EDGAR, ... Ill.
PERRY M. EVANS, ... Ill.

ABEL FORD, JR, ... Mich.
WILLIAM E. FENWICK, ... Mich.
EDWARD R. FLETCHER, ... Min.
GEORGE S. FOCHT, ... Iowa.
S. CAMPBELL FENTON, ... Ind.
WILLIAM FOX, ... Wis.
BENJAMIN F. FARLEY, ... Ill.
O. G. GIVEN, ... Kan.

AUGUSTUS H. GUERNSEY, ... Wis.
JOHN GREEN, ... Ill.
GEORGE GREEN, ... Ill.
STRADER S. GOLDSBERRY, .. Ind.
SAMUEL W. GOULD, ... Ind.
JOHN W. GOE, ... Wis.
JOSEPH C. GIFFORD, ... Ind.
JESSE T. B. GEPHART, ... Kan.

WILLIAM HENRY, ... Ill.
BENJAMIN R. HELMS, ... Ind.
GEO. WASHINGTON HUDSON, Ill.
WILLIAM HARVEY, ... C. W.
FREDERICK C. HAGEMAN, ... Ill.
MARCUS M. HALE, ... Ind.
THOMAS. A. HOLMAN, ... Ill.

BISHOP B. KELLEY, ... Neb
ADRIAN A. KITCHINGMAN, ... Wis.

HORACE R. LITTLEFIELD, ... Ill.
AUGUST LILJENCRANTZ, ... Wis.
LEDYARD VERDINE LEWIS, .. Wis.
CLARK LEAL, ... Ill.
BENJAMIN F. LARUE, ... Min.

JOHN M. LESTER,.....Can
FRANK L. LEWIS,.....Minn.
ALLEN R. LAW,.....Wis.
LAWRENCE A. LAURASON,..Mich.
STEPHEN W. LEE,.....Ill.
PHINEAS I. MULVANE,.....Ill.
WILLIAM L. McLEAN,.....Ill.
HER. WALTER MOREHOUSE,..Ill.
ANDREW J. MOORE,.....C. W.
GEORGE P. MOREY,.....N. Y.
PIERRE L. MONAST,.....Ill.
JAMES A. MATTHEWS,.....Mo.
SAMUEL MILLER,.....Min.
SIMON P. MORSE,.....Ill.
D. H. McFARLAND,.....Ill.
ALBERT B. MODESITT,.....Ind.
WILLIAM O. MENDENHALL,..Ill.
HENRY M. MARVIN,.....Mich.
WILLIAM J. MOORE,.....Ill.
CHARLES D. MANNING,.....Iowa.
JULIUS A. MORRIS,.....Ohio.
T. FLETCHER McFARLAND,..Ill.
BENJ. P. MILLER,.....Ill.
GEORGE B. NOYES,.....Ill.
OLIVER C. ORMSBY,.....Utah.

MILO PLACE,.....Ill.
LEWIS C. PAGE,.....Ind.
WILLIAM H. PALMER,.....Ill.
FRANCIS M. PICKINS,.....Ind.
ROBERT O. PURVIANCE,.....Ill.
BENJAMIN T. PHILLIPS,.....Wis.
WILLIAM B. PORTER,.....Iowa.
JUDSON C. PANTER,.....Ill.

CHARLES E. QUIRE,.....Iowa.
JAMES C. REYNOLDS,.....Wis.
JAMES W. REEDER,.....Ill.
CHARLES W. RUSSELL,.....Ind.
WALTER F. RANDOLPH,.....Ill.

JOHN WILEY SNIDER,.....Ind.
ZACHARY T. STANLEY,.....Ill.
WILLIAM H. STEWART,.....Ohio.
THEOPHILUS SPRAGUE,.....Ill.
WILLIAM M. SMITH,.....Ill.
HENRY C. SOULE,.....Wis.
JAMES B. STETSON,.....Ill.
H. WATSON SMITH,.....Wis.
CONRAD SECREST,.....Ill.
LEWIS A. SNYDER,.....Ind.
JOHN H. STEWART,.....Ill.
JACOB D. SMITH,.....Ill.
JOHN T. SCOTT,.....Ind.

JOHN W. TOPE,.....Ohio.
SAMUEL L. TYNER,.....Ind.
J. AUSTIN THOMPSON,.....Iowa.
WILLIAM TODD,.....Cal.

LEONARD P. WOODWORTH,..Wis.
DELINSO A. WALDEN,.....Ill.
CHARLES A. WILCOX,.....Ill.
JOHN C. WEBSTER,.....Ind.
ALBERT WILGUS,.....Ind.
JOHN C. WAITE,.....Ind.
GIDEON A. WEED,.....Cal.

Ad Eundem Degree.

RICHARD H. PLUMMER, M.D., Cal.
LOUIS STOSKOF, M.D.,.....Ill.
DAVID DODGE, M.D.,.....Ill.
J. F. GRIMES, M.D.,.....Iowa.

An Honorary Degree.

ANDREW McFARLAND, M.D.,.....Ill.